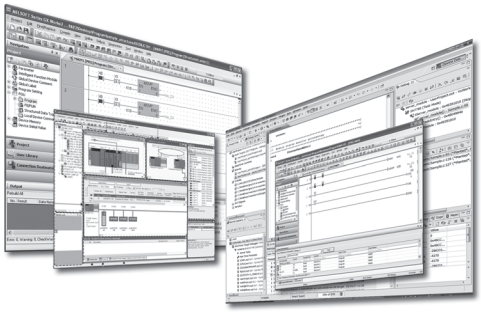
MITSUBISHI ELECTRIC

MELSOFT

Engineering Software

MX Sheet Version 2
Operating Manual

-SW2DNC-SHEET-E



●SAFETY PRECAUTIONS●

(Read these precautions before using this product.)

Before using this product, please read this manual and the relevant manuals carefully and pay full attention to safety to handle the product correctly.
The precautions given in this manual are concerned with this product. For the safety precautions of the programmable controller system, refer to the User's Manual for the CPU module.

In this manual, the safety precautions are classified into two levels: "⚠ WARNING" and "⚠ CAUTION".

⚠WARNING	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
⚠CAUTION	Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Under some circumstances, failure to observe the precautions given under "⚠ CAUTION" may lead to serious consequences.
Make sure that the end users read this manual and then keep the manual in a safe place for future reference.

[Design Instructions]

⚠WARNING

- When data change, program change, or status control is performed from a personal computer to a running programmable controller, create an interlock circuit outside the programmable controller to ensure that the whole system always operates safely.
  Furthermore, for the online operations performed from a personal computer to a programmable controller CPU, the corrective actions against a communication error due to such as a cable connection fault should be predetermined as a system.

⚠CAUTION

- The online operations performed from a personal computer to a running programmable controller CPU (forced output and operating status changes) must be executed after the manual has been carefully read and the safety has been ensured.
  The operation failure may cause the injury or machine damage.

●CONDITIONS OF USE FOR THE PRODUCT●

(1) Mitsubishi programmable controller ("the PRODUCT") shall be used in conditions;
i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.

(2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.
MITSUBISHI SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI'S USER, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.
("Prohibited Application")
Prohibited Applications include, but not limited to, the use of the PRODUCT in;
- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

Notwithstanding the above, restrictions Mitsubishi may in its sole discretion, authorize use of the PRODUCT in one or more of the Prohibited Applications, provided that the usage of the PRODUCT is limited only for the specific applications agreed to by Mitsubishi and provided further that no special quality assurance or fail-safe, redundant or other safety features which exceed the general specifications of the PRODUCTs are required. For details, please contact the Mitsubishi representative in your region.

INTRODUCTION

Thank you for your patronage. We appreciate your purchase of the Mitsubishi integrated FA software, MELSOFT series.
This manual is designed for users to understand operations of MX Component.
Before using the product, thoroughly read this manual and related manuals to develop full familiarity with the functions and performance of MX Sheet and supported modules to ensure correct use.

RELATED MANUALS

The manuals related to this product are shown below.

Refer to the following tables when ordering required manuals.

Manual name < Manual number, model code >	Description
MX Sheet Version 2 Operating Manual (Introduction) <SH-081081ENG, 13UJ74>	Explains the installation method, function outlines and operation methods of MX Sheet Version 2.
MX Component Version 4 Operating Manual <SH-081084ENG, 13JU75>	Explains the setting and operation methods of each utility on MX Component.
MX Component Version 4 Programming Manual <SH-081085ENG, 13JW12>	Explains the programming procedures, details and error codes for ACT control.

Remark

MX Sheet Version 2 Operating Manual (introduction) is included on the CD-ROM of the software package in a PDF file format.
Manuals in printed form are sold separately for single purchase. Order a manual by quoting the manual number (model code) listed in the table above.

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OPERATING CONSIDERATIONS

This section explains the instructions in the following order.

1) Using operating system and personal computer
2) Setting MX Sheet
3) Editing cells and Excel sheets
4) Performing communication
5) Using VBA
6) Using other MELSOFT products

Considerations for using operating system and personal computer

(1) When using Microsoft® Windows XP® or later

To set/change Communication Settings, a user who has an administrator authority must log on.
If the user account that does not have the administrator authority is used to execute the data conversion function, MX Links/MX Chart data cannot be converted.

(2) Coexistence of different Excel versions

When different versions of Excel exist in a single personal computer, MX Sheet does not operate normally. For example, Microsoft® Excel® 2007 and Microsoft® Excel® 2010 cannot coexist.

(3) Resume function, etc. of personal computer

If any of the following is set to the personal computer where MX Sheet is installed, a communication error is occur during communication with the programmable controller CPU.
Do not set the following functions on the personal computer.

- Resume function
- Suspend function
- Power saving function
- Standby mode.

Considerations for setting MX sheet

(1) Word designation for bit and bit designation for word

In the following tabs and screens, word designation for bit (e.g. K4M0) and bit designation for word (e.g. D0.0) cannot be set.

1) <<Access Data>> tab *1
2) <<Device Trigger>> tab
3) <<Handshake>> tab
4) Automatic Save screen
5) Automatic Print screen

*1: Digit-specified bit device (e.g. D0.0) can be set.

(2) Reading character strings

When character strings are read from the programmable controller CPU, the device data which prefix is either of the following characters are not displayed normally on an Excel spreadsheet.
When reading character strings from the programmable controller CPU, set proper setting so that either of the following characters are not prefixed.

1) = (equal)
2) ' (single quotation)

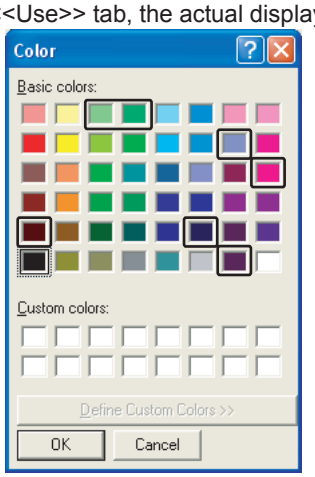
(3) Save of Excel sheets

MX Sheet saves Excel book at the timing of closing the Cell Settings screen. Before editing data, backup the Excel book is recommended.
If the file name specified in the Automatic Save screen or "Operating when cell is full" of the <<Use>> tab already exists, the old data is discarded and overwritten.
Set proper setting so that the file name specified in the Automatic Save screen or "Operating when cell is full" of the <<Use>> tab does not overlap those of the other Excel books.

(4) Color designation

(a) Color designation

When using Microsoft® Excel® 2003 and specifying any of the following colors for "Set the Color of Grid line" or "Set the Color for Filling" on the <<Use>> tab, the actual display color may differs from the specified color.



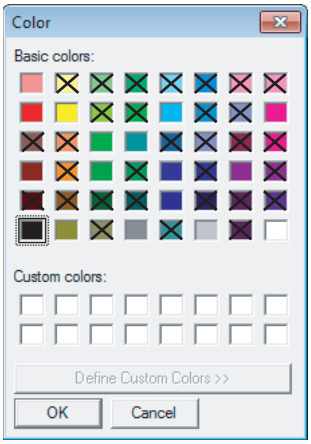
(b) Color designation from Excel

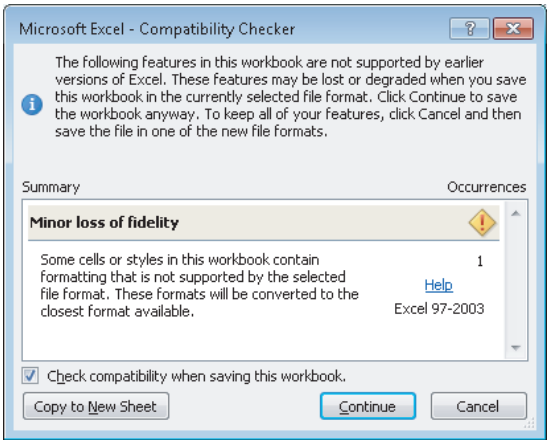
If the line color and cell filling color is specified from "Format Cells", of Excel, the colors specified in "Set the Color of Grind line" and "Set the Color for Filling" of the <<Use>> tab are invalid.

(c) Compatibility check

In Microsoft® Excel® 2007 or later, when setting colors to a Book in Excel from 97 to 2003 version with Cell Settings of MX Sheet, if specifying the color of Å~ on the following screen, the Compatibility Checker screen is displayed on the Excel at saving the Book.

<Compatibility Checker screen>




Microsoft Excel - Compatibility Checker
The following features in this workbook are not supported by earlier versions of Excel. These features may be lost or degraded when you save this workbook in the currently selected file format. Click Continue to save the workbook anyway. To keep all of your features, click Cancel and then save the file in one of the new file formats.
Summary
Occurrences
Minor loss of fidelity
Some cells or styles in this workbook contain formatting that is not supported by the selected file format. These formats will be converted to the closest format available.
1
Help
Excel 97-2003
Check compatibility when saving this workbook.
Copy to New Sheet
Continue
Cancel

(5) Excel spreadsheet where buttons are placed

When the Start Communication, End Communication or 1 Shot Communication button placed on the Excel spreadsheet is focused, do not log off from Windows or exit from Windows without closing the Excel book.
If attempted, the following message is displayed and disable exit from Excel.

(6) Size of saved Excel file according to Format Cells

On Excel, Format Cells increases the saved file size.
Also on MX Sheet, the size of the saved Excel file may become several M bytes or more since Format Cells is changed according to the setting.
<Example>

- When "Set the Color of Grid line" or "Set the Color of Filling" is selected on the <<Use>> tab
- When Logging is selected and "Add date and time details" is selected on the <<Use>> tab
- When Alarm Summary is selected on the <<Use>> tab
- When "Character string" is specified as the Data Type on the <<Access Data>> tab
- When "HEX" is specified as the Value on the <<Access Data>> tab

Considerations for editing cells and Excel spreadsheets

(1) Save function

If either of the following settings is set to the Excel book where the ActiveX controls and forms is applied, continuous operation of the personal computer is cause insufficient memory.
If insufficient memory has occurred, shut down the personal computer periodically.

- Save function of MX Sheet (automatic save function or save is performed when cell is full)
- Save function is called in a VBA program.

Microsoft® Excel® 2007 or later may require much time to save a Book than Microsoft® Excel® 2003.
For expected time, refer to the following section.
☞ Page 154, Appendix 2(4) File size at save and required time

(2) Changing of Excel spreadsheet name

When changing the sheet name of the Excel spreadsheet where MX Sheet is set, change it from the <<Add-Ins>> tab ⇨ [MX Sheet] ⇨ [Change Sheet Name].
(It can also be changed from the toolbar (icons) or a right-click of the mouse.)
If the sheet name is changed directly from Excel or from a VBA program, MX Sheet is not operate normally.
If this happens due to sheet name change, set the previous sheet name again.

(3) ErrorLog sheet

(a) Setting of sheet protection (workbook protection).
Do not set "Protect Sheet" and "Protect Workbook" to the ErrorLog sheet.
If such setting is set, the ErrorLog sheet does not operate normally.

(b) Sheet name
In the Excel book where MX Sheet is set, do not use the name "ErrorLog" to newly created worksheet, chart or dialog sheet.
If this happens, the ErrorLog sheet created by MX Sheet does not operate normally.

Considerations for performing communication

(1) Communication between personal computer and programmable controller CPU

When programmable controller CPU device data are collected/written using MX Sheet, the communication restrictions that apply to MX Component also occur between the personal computer and programmable controller CPU.

For the restrictions on communications between the personal computer and programmable controller CPU, refer to the following manual.

MX Component Version 4 Operating Manual.

(2) Preview setting of Excel

When starting the communication of MX Sheet, do not activate the preview setting (print preview, etc.) of Excel.

If the communication of MX Sheet is started with the preview setting of Excel active, a memory leak is occur.

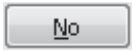
(3) Simultaneous communication from multiple Excel books

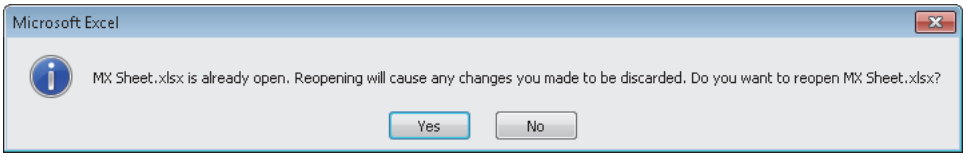
Multiple Excel books where MX Sheet setting is set cannot be started on a single personal computer to perform communication simultaneously.

(4) When communicating Excel book is double-started

Do not perform a double start (restart) of the Excel book that is communicating using MX Sheet.

If such operation is performed, the following message is displayed.

Click the No  interrupt a double start (restart).


Microsoft Excel
MX Sheet.xlsx is already open. Reopening will cause any changes you made to be discarded. Do you want to reopen MX Sheet.xlsx?
Yes
No

(5) "Run-time error '9'"

The following symptom is occur at the upgrade of Excel or MX Sheet due to the temporary file created by Excel.

In this case, take the following corrective action to recover from the error.

(a) Symptom

- After Automatic communication startup is executed in MX Sheet, the available/unavailable buttons for the function will be inappropriate.
- "Run-time error '9' : Subscript out of range" is displayed when Excel is started up.

(b) Corrective action

Delete the temporary file according to the following procedure.

1) Enter '%temp%\Excel8.0' in the Windows® Explorer, and delete the files under '%temp%\Excel8.0'.

2) Enter '%AppData%\Microsoft\Excel' in the Windows® Explorer, and delete the '.xlb' file under '%AppData%\Microsoft\Excel'.

(6) Operation of other Excel book

Do not operate other Excel book during communication.

(7) When logoff/shutdown is executed during communication

Do not log off or shut down the personal computer during usual communication or 1 shot communication.
Log off or shut down the personal computer after terminating the communication with the programmable controller CPU and exiting from Excel.
If logoff or shutdown of the personal computer is executed during communication, the following symptoms are observed.
In this case, take corrective actions to restore the system.

(a) Symptom

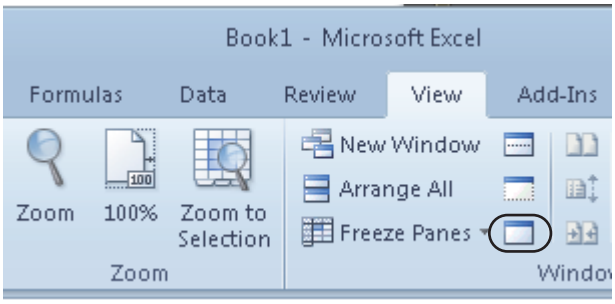
When MX Sheet setting is set, only the frame of Excel is displayed.

(b) Corrective action

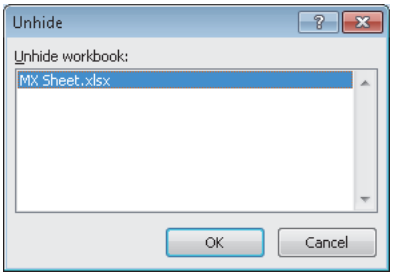
In the following procedure, remove the hide attributes of the Excel book and overwrite the Excel book to restore the system.

1) Select the <<Display>> tab and select [Unhide].*1

*1 : When using Microsoft® Excel® 2003, select [Window] ⇨ [Unhide] in the Excel menu.



2) Select the Excel book to be displayed and click the OK button.



3) As the Excel book is displayed, save the Excel book.

(8) USB communication

If the USB cable is connected/disconnected, the programmable controller CPU is reset or programmable controller CPU is powered on/off frequently during communication with the programmable controller CPU, a communication error occurs and communication cannot be returned to normal.
If this happens, disconnect the USB cable completely, leave it for 5 seconds or more and reconnect it. (An error may occur at the time of initial communication after the above operation, however, communication is performed normally at and after the second time.)

(9) Excel operation during communication

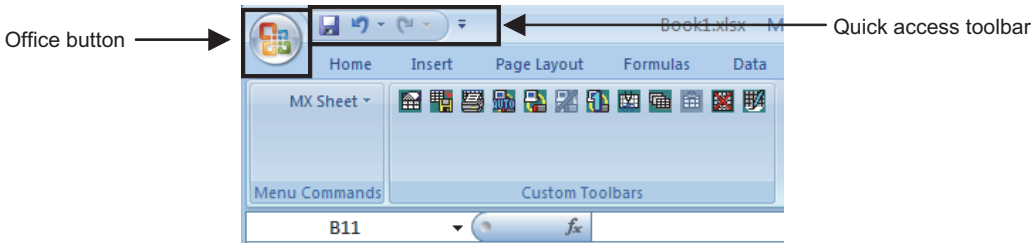
(a) If Excel is in either of the following status, MX Sheet cannot execute operations on Excel (e.g. display into cells, or save or print of an Excel book).

- A cell is in input status (e.g. a cell is double-clicked, or the cursor is at the formula bar).
- A message or a dialog box is displayed on Excel.

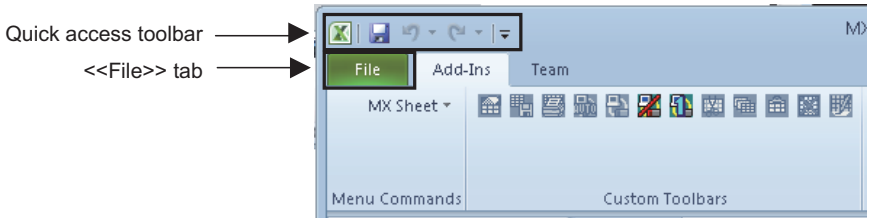
Minimize the number of input processes on Excel during communications.

(b) The operation of Excel during communication is restricted as follows.

- Excel 2003 hides the menu bar and toolbar.
- Microsoft® Excel® 2003 hides the menu bar and toolbar.
- Microsoft® Excel® 2007 hides tabs on the ribbon.
  Do not operate the office button and quick access toolbar during communication, though they are displayed.

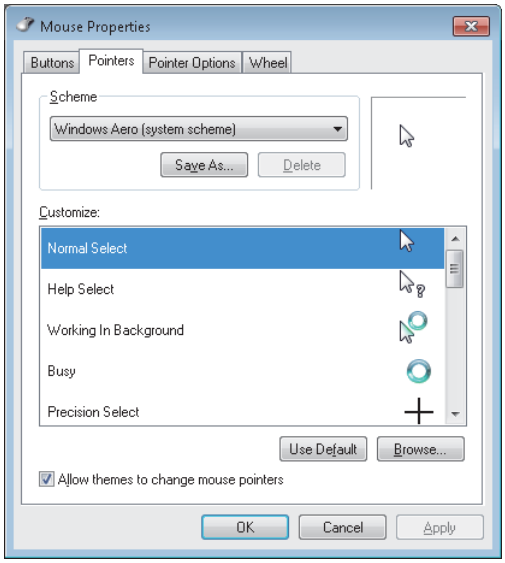


- Microsoft® Excel® 2010 or later hides tabs on the ribbon. Although the <<File>> tab and the quick access toolbar are displayed, do not operate them during communications.



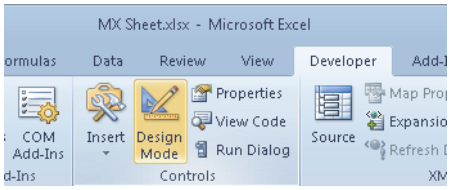
(10) Mouse cursor during communication

While MX Sheet is communicating, the mouse cursor setting of an Excel sheet is fixed to the one of "Normal Select" in "Mouse Properties".



(11) Change to Design Mode of Excel during communication

For Excel during communication, do not change to the Design Mode.
If attempted, normal operation of MX Sheet may be disabled.



(12) Continuous operation when saving data automatically in HTML format

Do not operate MX Sheet continuously when the Automatic save function is set to save data in HTML format.
For operating MX Sheet continuously, exit and reactivate Excel periodically.
If data are saved repeatedly in HTML format with the Automatic save function, Excel may not operate properly.
The time for allowable continuous operation differs according to the operating environment.

Considerations for using VBA

(1) Incorporation of VBA program

When incorporating a user-created VBA program into the Excel spreadsheet where MX Sheet is set, check the operation of the VBA program first and then perform MX Sheet programming for the Excel spreadsheet.

(2) VBA program creation

MX Sheet utilizes OLE Automation for communication.
Do not perform the following on VBA programs.

1) Do not execute the DoEvents method in a For-Next loop.
2) FileFilter is ignored in the GetSaveAsFileName method.
3) Do not execute the Reset method in the Excel menu.

Considerations for using other MELSOFT products

(1) Version of MX Component

When using MX Sheet Version 2.0, MX Component Version 4.0 or later is required.

(2) Logical station number

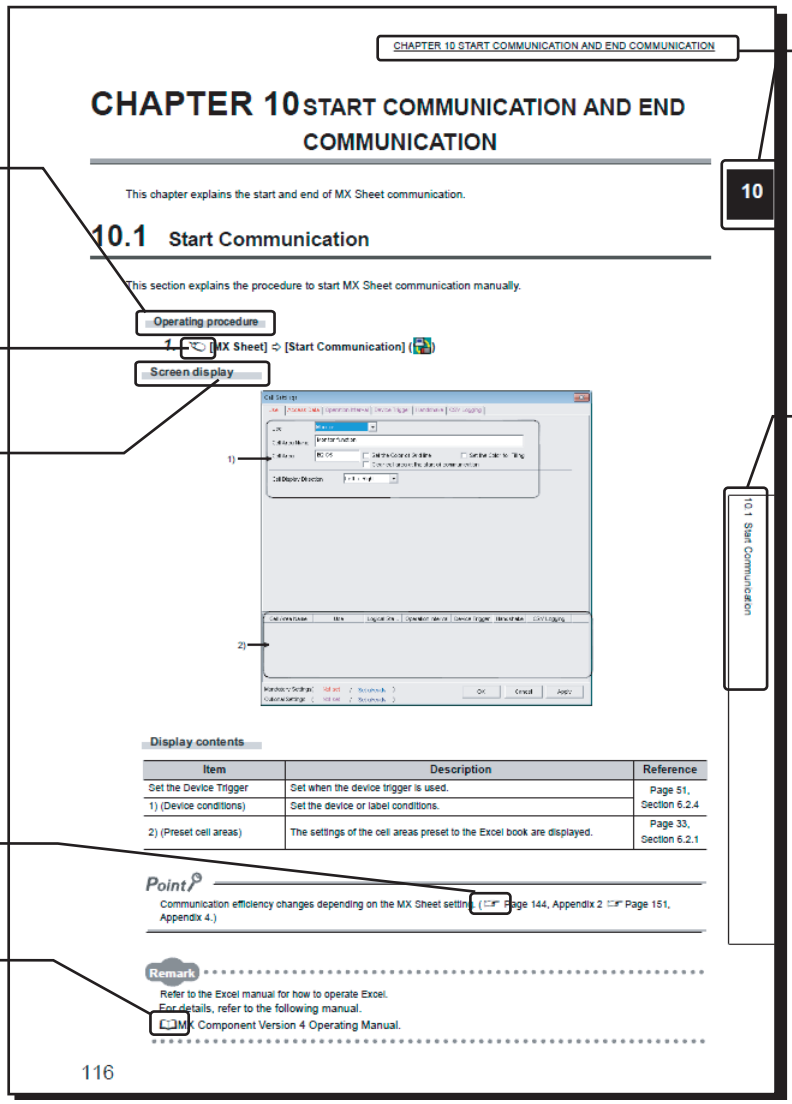
Before deleting the logical station number from the communication setup utility of MX Component, check that the logical station number to be deleted is not used in MX Sheet.
If the logical station number used in MX Sheet is deleted, MX Sheet does not operate normally.

(3) Modem communication

When communication via modem is performed by MX Sheet, MX Sheet, GX Developer and other applications (e.g. user applications utilizing MX Component) cannot perform communication simultaneously.
If simultaneous communication is attempted using MX Sheet, GX Developer and other applications, a fault such as a communication error, telephone line disconnection is occur.
When performing communication via modem using MX Sheet, check that GX Developer and other applications do not use modems.

HOW TO READ THIS MANUAL

The following explains the page composition and symbols in this manual.
The content of the example page used here are different from the actual content for the intention of explaining how to read this manual.


CHAPTER 10 START COMMUNICATION AND END COMMUNICATION
CHAPTER 10 START COMMUNICATION AND END COMMUNICATION
This chapter explains the start and end of MX Sheet communication.
10
10.1 Start Communication
This section explains the procedure to start MX Sheet communication manually.
Operating procedure
1. [MX Sheet] ⇨ [Start Communication] ( )
Screen display
1)
2)
10.1 Start Communication
Display contents
Item
Description
Reference
Set the Device Trigger
Set when the device trigger is used.
1) (Device conditions)
Set the device or label conditions.
Page 51, Section 6.2.4
2) (Preset cell areas)
The settings of the cell areas preset to the Excel book are displayed.
Page 33, Section 6.2.1
Point
Communication efficiency changes depending on the MX Sheet setting (☞ Page 144, Appendix 2 ☞ Page 151, Appendix 4.)
Remark
Refer to the Excel manual for how to operate Excel.
For details, refer to the following manual.
MX Component Version 4 Operating Manual.
116

Operating procedure describes the operating procedure of the function.

☜ indicates the menu operation.

Screen display describes the screen displayed when the function is used.

☞ indicates the reference page.

📖 indicates the reference manual.

Indicates the chapter of currently open page.

Indicates the section of currently open page.

- Operating procedure

  The following three types of procedure are found under **Operating procedure**.

  1) When the operation is performed with a single step

  ☜ **[MX Sheet] ⇨ [Start Communication] ( )**

  2) When the operation is performed with multiple steps

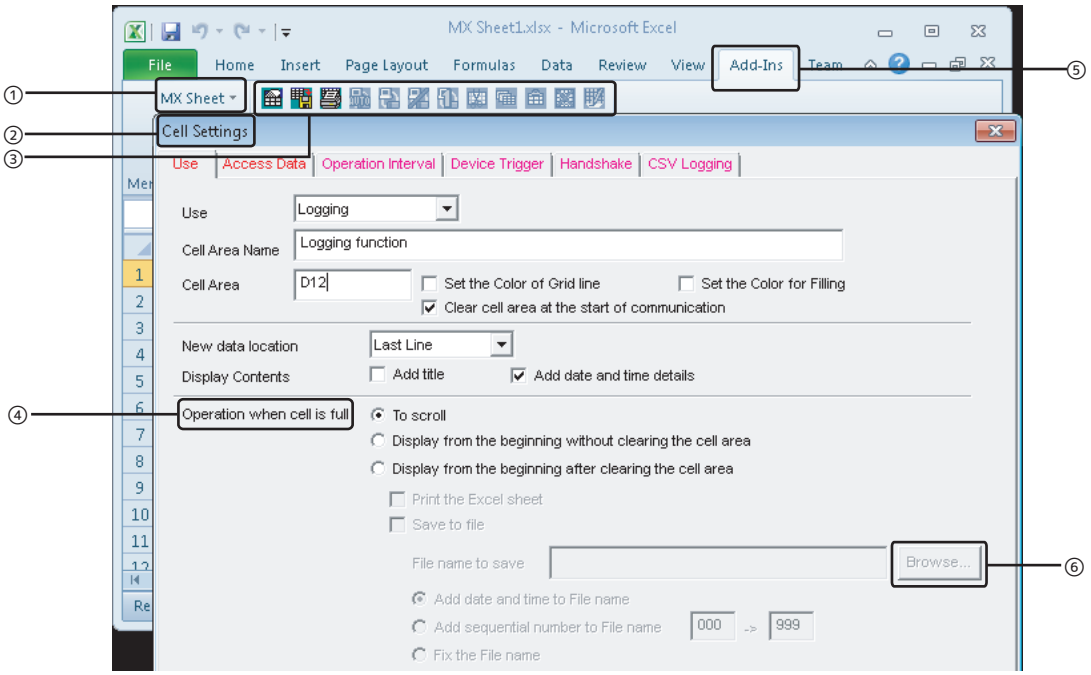
  1. **Click the <<Add-Ins>> tab.**
  2. ☜ **[MX Sheet] ⇨ [Start Communication] ( )**

  3) When the operation can be performed by more than one method

  - ☜ **[MX Sheet] ⇨ [Start Communication] ( )**
  - **Click the start communication button (☞ Page 134, Section 14.1).**

• Symbols used in this manual

The following shows the symbols used in this manual with descriptions and examples.



No.	Notation	Description	Example
①	[ ]	Menu name on menu bar	[MX Sheet] ⇨ [Cell Setting]
②	(Underline)	Screen name	Cell Settings screen
③	( )	Toolbar icon	( )
④	" "	Item name on screen	"Operation when cell is full"
⑤	<< >>	Tab name on screen	<<Add-Ins>> tab
⑥		Button on screen	Browse... button
-		Keyboard key	key

TERMS

This manual uses the terms listed in the following table unless otherwise noted.

Term	Description
MX Sheet	Generic product name for SWnDNC-SHEET-E and SWnDNC-SHEET-EA (n: version) -EA indicates a volume-license product.
MX Component	Generic product name for SWnDNC-ACT-E and SWnDNC-ACT-EA (n: version) -EA indicates a volume-license product.
Personal computer	Generic term for personal computers on which Windows® operates
PC CPU module	Abbreviation for MELSEC-Q series compatible PC CPU module (CONTEC CO., LTD. product)
RCPU	Generic term for R04, R08, R08P, R08SF, R16, R16P, R16SF, R32, R32P, R32SF, R120, R120P, and R120SF
FX5CPU	Generic term for FX_{5U} and FX_{5UC}
FXCPU	Generic term for FX_{0}, FX_{0S}, FX_{0N}, FX_{1}, FX_{1N}, FX_{1NC}, FX_{1S}, FX_{U}, FX_{2C}, FX_{2N}, FX_{2NC}, FX_{3S}, FX_{3G}, FX_{3U}, and FX_{3UC}
Ethernet Built-in CPU	Generic term for RCPU, built-in Ethernet port QCPU, LCPU and FX5CPU
Q series-compatible C24	Generic term for QJ71C24, QJ71C24-R2, QJ71C24N, QJ71C24N-R2, and QJ71C24N-R4
L series-compatible C24	Generic term for LJ71C24 and LJ71C24-R2
FX extended port	Generic term for FX_{0N}-485ADP, FX_{2NC}-485ADP, FX_{1N}-485-BD, FX_{2N}-485-BD, FX_{3G}-485-BD, FX_{3U}-485-BD, and FX_{3U}-485ADP
GOT	Abbreviation for Graphic Operation Terminal
R Motion CPU	Generic term for R16MTCPU, R32MTCPU
Inverter	Generic term for FREQROL-A800 series
Robot controller	Abbreviation for CR750-D/CRnD-700 series
Ethernet communication	Abbreviation for communication by connecting the personal computer to Ethernet module or the built-in Ethernet port CPU
Modem communication	Abbreviation for communication with programmable controller CPU via modems using Q series-compatible C24, L series-compatible C24 or FXCPU
Windows XP®	Generic term for Microsoft® Windows XP® Professional Operating System (English version) and Microsoft® Windows XP® Home Edition Operating System (English version)
Windows Vista®	Generic term for Microsoft® Windows Vista® Home Basic Operating System (English version), Microsoft® Windows Vista® Home Premium Operating System (English version), Microsoft® Windows Vista® Business Operating System (English version), Microsoft® Windows Vista® Ultimate Operating System (English version), and Microsoft® Window Vista® Enterprise Operating System (English version)
Windows® 7	Generic term for Microsoft® Windows® 7 Starter Operating System (English version), Microsoft® Windows® 7 Home Premium Operating System (English version), Microsoft® Windows® 7 Professional Operating System (English version), Microsoft® Windows® 7 Ultimate Operating System (English version), and Microsoft® Windows® 7 Enterprise Operating System (English version) Windows® 7 (32-bit version) is used for indicating 32-bit version only, and Windows® 7 (64-bit version) is used for indicating 64-bit version only.
Windows® 8	Generic term for Microsoft® Windows® 8 Operating System (English version), Microsoft® Windows® 8 Pro Operating System (English version), and Microsoft® Windows® 8 Enterprise Operating System (English version) Windows® 8 (32-bit version) is used for indicating 32-bit version only, and Windows® 8 (64-bit version) is used for indicating 64-bit version only.
Windows® 8.1	Generic term for Microsoft® Windows® 8.1 Operating System (English version), Microsoft® Windows® 8.1 Pro Operating System (English version), and Microsoft® Windows® 8.1 Enterprise Operating System (English version) Windows® 8.1 (32-bit version) is used for indicating 32-bit version only, and Windows® 8.1 (64-bit version) is used for indicating 64-bit version only.
Windows XP® or later	Generic term for Windows XP®, Windows Vista®, Windows® 7, Windows® 8, and Windows® 8.1.

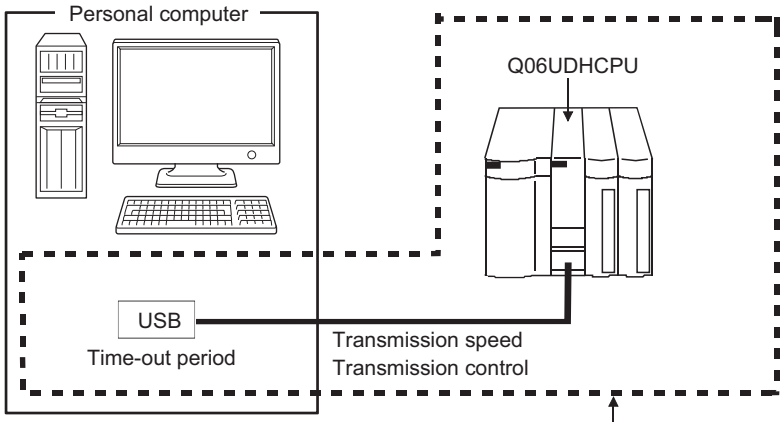
Term	Description
Windows Vista® or later	Generic term for Windows Vista®, Windows® 7, Windows® 8, and Windows® 8.1.
Windows® 7 or later	Generic term for Windows® 7, Windows® 8, and Windows® 8.1.
Excel	Generic term for Microsoft® Excel® 2003, Microsoft® Excel® 2007, Microsoft® Excel® 2010 (32-bit version), and Microsoft® Excel® 2013 (32-bit version).
MELSOFT Navigator	A product name for the integrated development environment included in SWnDND-IQWK (MELSOFT iQ Works) ('n' indicates version.)
Label	Generic term for label names assigned to each device. It can be used instead of devices in programs.
System label	A label that can be used commonly among iQ Works-supported products It is managed by MELSOFT Navigator. There are two kinds of system labels; system label Ver.1 and system label Ver.2. The system label Ver.2 is supported by MX Component Version 4.07H or later.

MEANINGS AND DEFINITIONS OF TERMS

The following are the terms used in this manual.

(1) Logical station number

A number assigned to the group of data that is integrated from the connection target information required for communication within the communication setup utility of MX Component.


Personal computer
Q06UDHCPU
USB
Time-out period
Transmission speed
Transmission control
Target information up to Communication target CPU is combined into one data, to which logical station number is assigned.

PACKING LIST

MX Sheet consists of the following products.

Model	Product Name	Quantity
SW2D5C-SHEET-E (English version package) (Standard license product)	MX Sheet CD-ROM	1
	End-user software license agreement	1
	Software registration notice	1
	License certificate	1
SW2D5C-SHEET-EA (English version package) (Volume license product)	MX Sheet CD-ROM	1
	End-user software license agreement	1
	Software registration notice	1
	License certificate	n*1

*1 : The number of included license agreements is equivalent to the number of licenses.

CHAPTER 1 OVERVIEW

1.1 Overview of MX Sheet

MX Sheet is a communication support software package that allows device data collection, etc. by simple, programless setting using Excel.

Logging function, monitor function

Logging

Date	D0	D1	D2	D3
2012/06/28 Thu 20:41:07	1	2	3	4
2012/06/28 Thu 20:41:12	11	12	13	14
2012/06/28 Thu 20:41:17	21	22	23	24
2012/06/28 Thu 20:41:22	31	32	33	34
2012/06/28 Thu 20:41:27	41	42	43	44
2012/06/28 Thu 20:41:32	51	52	53	54
2012/06/28 Thu 20:41:37	61	62	63	64
2012/06/28 Thu 20:41:42	71	72	73	74

Monitor

D0	D1	D2	D3
1	2	3	4

Write function

Write

D0	D1	D2	D3
101	102	103	104

Automatic print function

Automatic save function

Excel book file
HTML file
CSV file

Alarm summary function

Generation	2012/06/28 Thu 20:41:17	Material storange	Minor failure

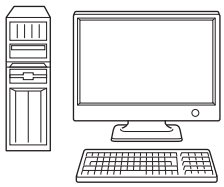
Generation	2012/06/28 Thu 20:41:17	Material storange	Minor failure
Restoration	2012/06/28 Thu 20:43:53	Material storange	Minor failure

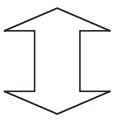
Comment display function

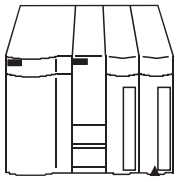
[Temperature] within the normal range

[Temperature] over the upper limit

MX Sheet







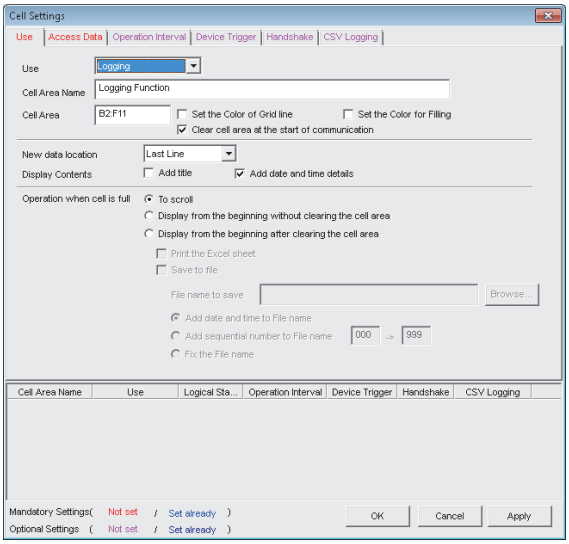
Programmable controller CPU

1.2 Features

(1) Program-less and easy setting

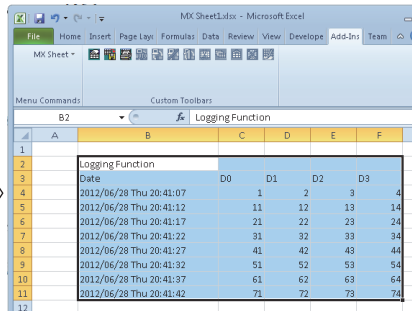
Programmable controller CPU device data can be collected/written by performing simple setting without programming.

MX Sheet



Performing simple setting

Excel



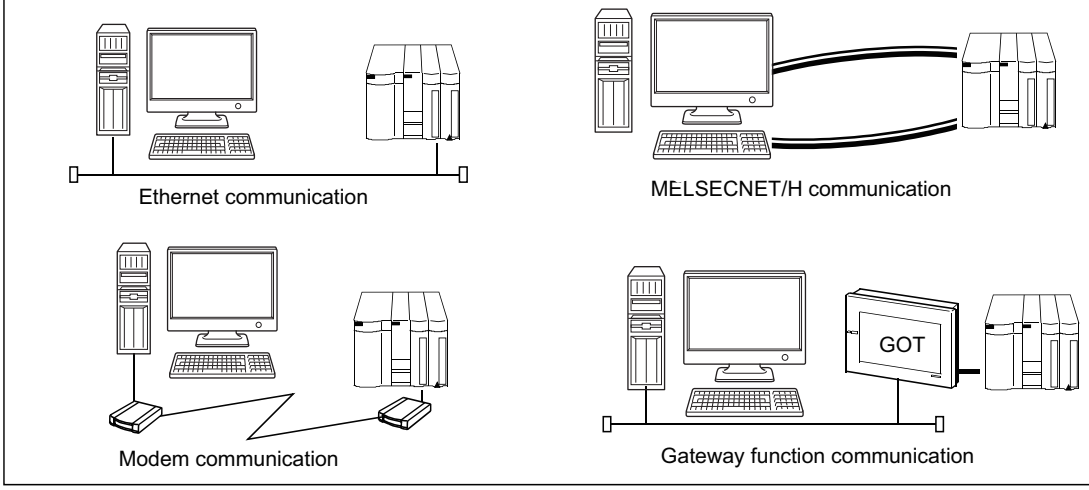
Programmable controller CPU device data are displayed on Excel spreadsheet.

(2) Collection/write of device data using a wide range of communication paths

MX Sheet uses MX Component for communication between the programmable controller CPU and personal computer.

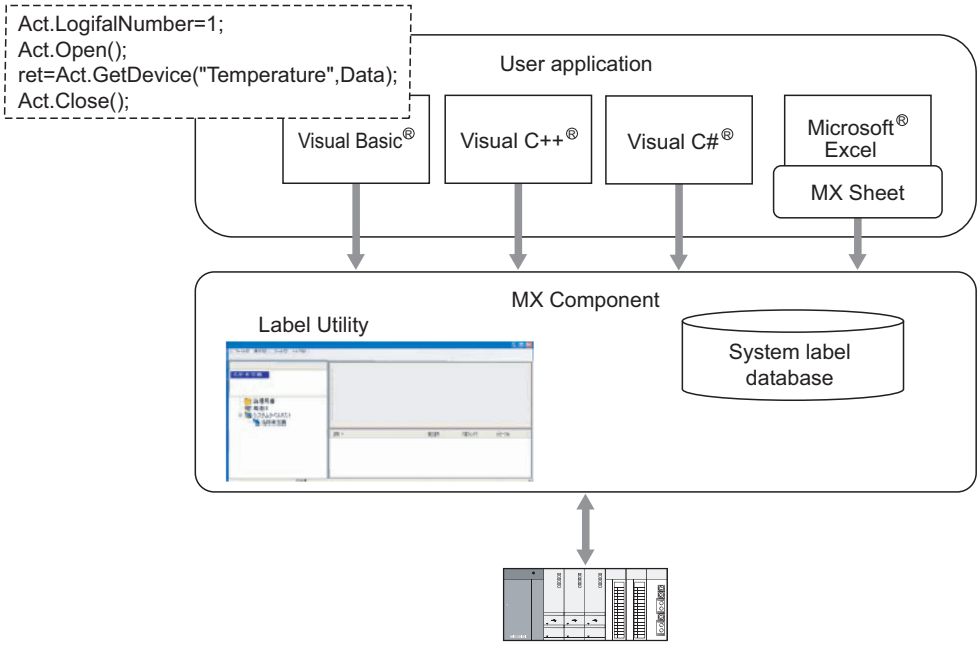
Using a variety of communication paths supported by MX Component, system configuration that meets user's requirement can be achieved.

<Examples of communication using MX Component>



(3) The data using labels can be displayed/set.

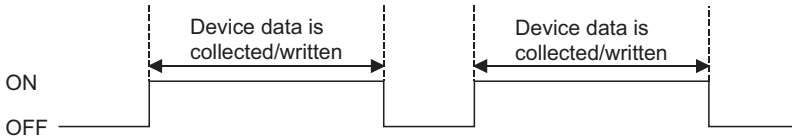
Not only devices, but also the data using labels can be displayed/set.
Register the labels using Label Utility of MX Component.



(4) Each function can be controlled by device condition.

The condition of device data collection/write can be set to programmable controller CPU devices.
The execution of any MX Sheet function can be controlled from the programmable controller CPU side.

<When device data is collected/written while bit device is on>

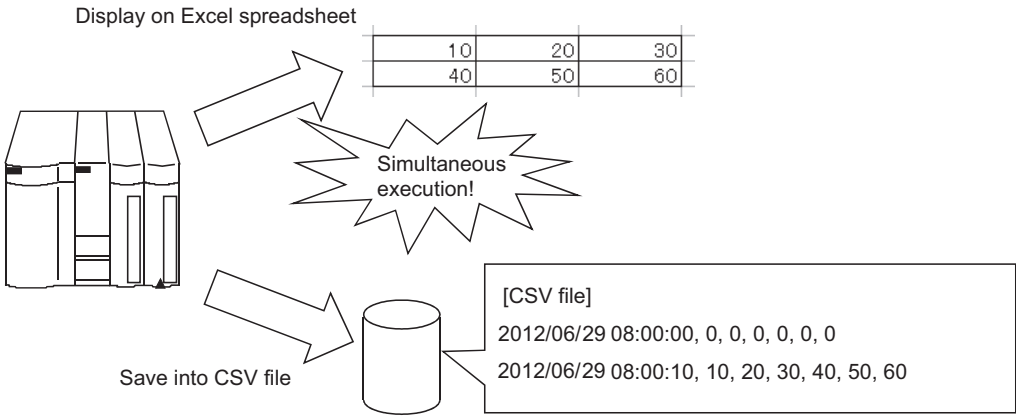


Corresponding functions

- Logging
- Write
- Comment display
- Automatic print
- Monitor
- Alarm summary
- Automatic save

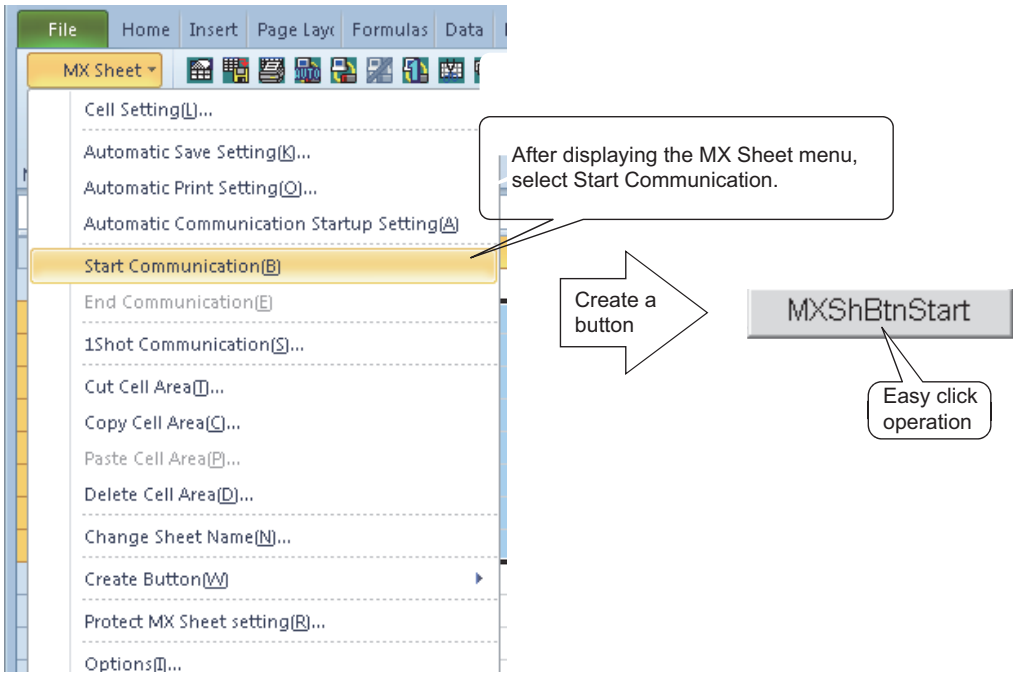
(5) Data logging using CSV file

Using the logging or monitor function, device data can be displayed on Excel spreadsheet, and simultaneously, collected data can be saved into a CSV file.
Long-term data collection is enabled by a single CSV file.


Display on Excel spreadsheet
10 20 30
40 50 60
Simultaneous execution!
Save into CSV file
[CSV file]
2012/06/29 08:00:00, 0, 0, 0, 0, 0, 0
2012/06/29 08:00:10, 10, 20, 30, 40, 50, 60

(6) Improvement of operability by buttons

By creating buttons, the Start Communication, End Communication, and 1 Shot Communication functions can be executed by merely clicking the corresponding buttons.
Operability is improved as compared to the execution of the functions from the menu.



CHAPTER 2 SYSTEM CONFIGURATIONS

The system configuration for MX Sheet is the same as that for MX Component Version 4.
For details, refer to the following manual.
📖MX Component Version 4 Operating Manual.

2.1 Operating Environment

The following table summarizes the operating environment for MX Sheet.

Item		Description
Personal computer		Windows® supported personal computer
	CPU	Intel® Core™2 Duo 2GHz or higher is recommended.
	Required memory	Recommended 1GB or more *1
PC CPU module		MELSEC-Q series-compatible PC CPU module (CONTEC CO., LTD. product)
Available hard disk capacity		At installation: 300MB or more. *2, *3 At operation: Virtual memory available capacity is 512MB or more.
Display		Resolution 1024 × 768 dots or more
Operating system *4, *5, *6		Microsoft® Windows XP® Professional Operating System (English version) SP3 or later Microsoft® Windows XP® Home Edition Operating System (English version) SP3 or later Microsoft® Windows Vista® Home Basic Operating System (English version) SP2 or later Microsoft® Windows Vista® Home Premium Operating System (English version) SP2 or later Microsoft® Windows Vista® Business Operating System (English version) SP2 or later Microsoft® Windows Vista® Ultimate Operating System (English version) SP2 or later Microsoft® Windows Vista® Enterprise Operating System (English version) SP2 or later Microsoft® Windows® 7 Starter Operating System (English version) *7 Microsoft® Windows® 7 Home Premium Operating System (English version) *7 Microsoft® Windows® 7 Professional Operating System (English version) *7 Microsoft® Windows® 7 Ultimate Operating System (English version) *7 Microsoft® Windows® 7 Enterprise Operating System (English version) *7 Microsoft® Windows® 8 Operating System (English version) *8 Microsoft® Windows® 8 Pro Operating System (English version) *8 Microsoft® Windows® 8 Enterprise Operating System (English version) *8 Microsoft® Windows® 8.1 Operating System (English version) *8 Microsoft® Windows® 8.1 Pro Operating System (English version) *8 Microsoft® Windows® 8.1 Enterprise Operating System (English version) *8

*1 : For Windows® 7 (64-bit version), Windows® 8 (64-bit version), or Windows® 8.1 (64-bit version), 2GB or more memory is required.
*2 : When installing .NET Framework, at least 1GB of free space is required.
*3 : This includes the required free space for installation of MX Component.
*4 : Windows XP® Professional (64-bit version) and Windows Vista® (64-bit version) cannot be used.
*5 : .NET Framework 2.0 and .NET Framework 2.0 English Language Pack installation is required.
*6 : The following functions cannot be used. If used, this product may not operate normally.
- Activating the application with Windows® compatible mode
- Simplified user switch-over
- Remote desktop
- Large font size (Advanced setting of Display Properties)
- DPI setting other than 100 % (set the size of text and illustration other than [smaller-100%])
- Windows® Hibernate and Standby

*7 : The following functions cannot be used.
- Windows XP Mode
- Windows Touch

*8 : The following functions cannot be used.
- Modern UI
- Client Hyper-V
- Touch

Item		Description
Required software		
	Excel*9	Microsoft® Excel® 2003 (English version), Microsoft® Excel® 2007 (English version)*10, Microsoft® Excel® 2010 (32-bit version) (English version)*11, or Microsoft® Excel® 2013 (32-bit version) (English version)*12
	MX Component	MX Component Version 4 or later

*9 : Excel spreadsheets created in the English environment are applicable to the English environment only, cannot be used in the other environment.

*10 : When using Microsoft® Excel® 2007, Microsoft® Windows XP® Service Pack 2 or later is required.

*11 : When using Microsoft® Excel® 2010 (32-bit version), Microsoft Windows XP® Service Pack 3, Microsoft® Windows Vista® Service Pack 1, or Microsoft® Windows® 7 or later is required. Microsoft® Excel® 2010 (64-bit version) is not supported.

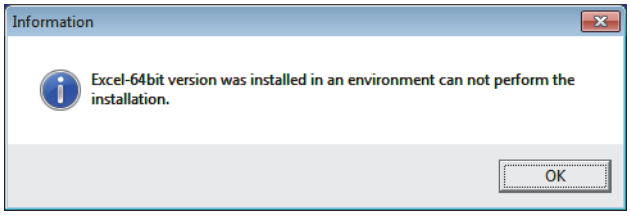
*12 : When using Microsoft® Excel® 2013 (32-bit version), Windows® 7 or later is required. Microsoft® Excel® 2013 (64-bit version) is not supported.

Point

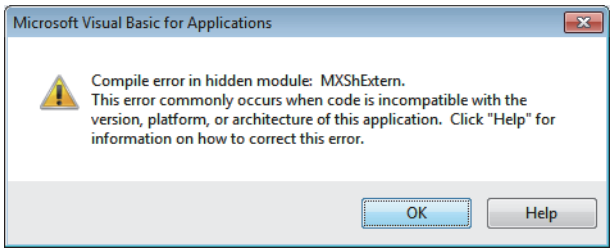
- Considerations when using Microsoft® Excel® 2010 or later

  In order to use MX Sheet, install Microsoft® Excel® 2010 (32-bit version) or later.

  When installing MX Sheet on the personal computer where Microsoft® Excel® 2010 (64-bit version) or later is installed, the following error message is displayed.



  After MX Sheet is installed, Microsoft® Excel® 2010 (64-bit version) or later is installed and started, then an add-in is installed, the following error message is displayed.


Microsoft Visual Basic for Applications
Compile error in hidden module: MXShExtern.
This error commonly occurs when code is incompatible with the version, platform, or architecture of this application. Click "Help" for information on how to correct this error.
OK
Help

CHAPTER 3 FUNCTION LIST OF MX Sheet

This chapter explains the functions of MX Sheet, accessible CPUs and accessible devices.

3.1 Function List of MX Sheet

Function Name	Description	Available Device Points	Available Cells	Reference Section
Logging	Accumulates device data collected from programmable controller CPU in cell range selected on Excel as history.	256 points *1,*2	256 columns 65536 rows	Page 33, Section 6.2
Monitor	Displays device data collected from programmable controller CPU in cell range selected on Excel.	2000 points*1,*3	2000	Page 70, Section 6.3
Write	Writes values entered on Excel to programmable controller CPU devices.	2000 points*1,*3	2000	Page 80, Section 6.4
Alarm summary	Converts ON/OFF data of bit devices into alarm comment character strings that are set separately and accumulates them on Excel spreadsheet as alarm history.	2000 points*2,*4	6 columns 65536 rows	Page 89, Section 6.5
Comment display	Converts bit or word device values into comment character strings that are set separately and displays them on Excel spreadsheet.	1 point*5	1	Page 99, Section 6.6
Device trigger	Collects/Writes device data when set device conditions set for collection/write are met.	-		Page 54, Section 6.2.4
Handshake	Sets handshake with programmable controller CPU for secure device data collection/write.	-		Page 57, Section 6.2.5
CSV logging	Displays device data on Excel spreadsheet with logging or monitor function, and simultaneously saves collected data as a CSV file.	-		Page 67, Section 6.2.6
Automatic save	Automatically saves Excel book.	-		Page 110, CHAPTER 7
Automatic print	Automatically prints Excel book.	-		Page 117, CHAPTER 8
Automatic communication startup	Automatically starts communication with programmable controller CPU when Excel book is started.	-		Page 120, CHAPTER 9
Communication start	This function starts communication with the programmable controller CPU.	-		Page 122, Section 10.1
Communication end	This function ends communication with the programmable controller CPU.	-		Page 125, Section 10.2
1 shot communication	Executes functions set in the selected cell range at any desired timing.	-		Page 126, CHAPTER 11
Create Button	This function creates buttons to facilitate Start Communication, End Communication, and 1 Shot Communication operations.	-		Page 134, CHAPTER 14
Protect/ Unprotect MS Sheet setting	This function sets/cancels the password for protecting the MX Sheet setting.	-		Page 140, CHAPTER 15
Options	This function sets the output format of the error log sheet.	-		Page 144, CHAPTER 16
Setting data export	Outputs MX Sheet settings in CSV file format.	-		Page 146, CHAPTER 17

*1 : This number of device points refers to the case where word device data are collected/written in 16-bit integer.
The number of device points that can be set changes depending on the device data type, etc.
*2 : One Excel file (one Excel book) accepts 100 - cell - area setting.
*3 : One Excel file (one Excel book) accepts 1000 - cell - area setting.
*4 : Only bit devices can be set.
*5 : One Excel file (one Excel book) accepts 500 - cell - area setting.

3.2 Accessible CPUs and Accessible Device Ranges

(1) Accessible CPUs

The accessible CPUs in MX Sheet are the same as those in MX Component Version 4.
For details, refer to the following manual.
📖MX Component Version 4 Operating Manual.

(2) Accessible device ranges

The accessible device ranges in MX Sheet are the same as those in MX Component Version 4, with the exception of the following item.
For details, refer to the following manual.
📖MX Component Version 4 Operating Manual.

(a) Device extension representation

MX Sheet does not allow access to any device by word designation for bit device (e.g. K4X0, K8M0) and bit designation for word device (e.g. D0.0, W.01).

(3) Specifying GOT timer contact devices and counter contact devices

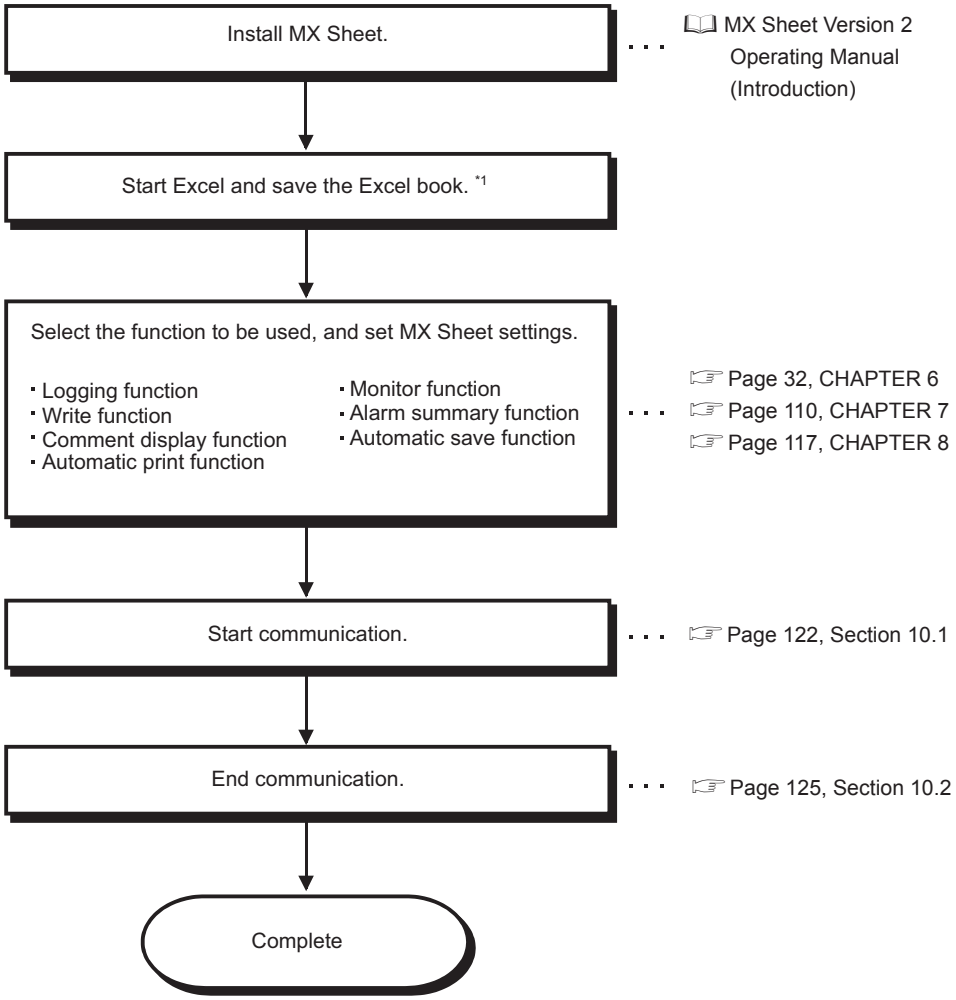
In the cell settings of MX Sheet (☞ Page 32, CHAPTER 6), timer contact devices (TT) and counter contact devices (CT) which are the device representation of GOT can be entered.
The entered "TT" and "CT" are automatically changed to "TS" and "CS" respectively.

(4) Specifying devices on Q motion CPU

The device write function cannot be executed.
Device indexing (bit specification, digit specification, indexed addressing) cannot be used.

CHAPTER 4 MX Sheet OPERATION PROCEDURE

The following explains the MX Sheet operation procedure.


Install MX Sheet.
MX Sheet Version 2 Operating Manual (Introduction)
Start Excel and save the Excel book. *1
Select the function to be used, and set MX Sheet settings.
・Logging function
・Write function
・Comment display function
・Automatic print function
・Monitor function
・Alarm summary function
・Automatic save function
☞ Page 32, CHAPTER 6
☞ Page 110, CHAPTER 7
☞ Page 117, CHAPTER 8
Start communication.
☞ Page 122, Section 10.1
End communication.
☞ Page 125, Section 10.2
Complete

*1 : Before starting MX Sheet settings, save the Excel book. If not, MX Sheet cannot be set.

Point

Communication efficiency changes depending on the MX Sheet setting. (☞ Page 152, Appendix 2 ☞ Page 160, Appendix 4.)

Remark

Refer to the Excel manual for how to operate Excel.

(1) Administrator authority when setting/changing communication setup on Windows Vista® and Windows® 7

Administrator authority is required for setting/changing communication setup.

(a) Administrator authority in case of Windows Vista and Windows® 7

- When user account control (UAC) is enabled

  All users including administrator are fixed at and operate as "standard user".

  To execute programs in administrator authority*1, specify "Run as administrator".

*1 : When executing Excel with administrator authority, even if selecting "NO" for "Do you execute programs as an administrator?" executes with administrator authority.

- When user account control (UAC) is invalid

  The programs can be executed with administrator authority.

(b) When setting/changing the communication setup on Windows Vista® and Windows® 7

The following three methods are available to set/change the communication setup.

- Execute the communication setup utility of MX Component with Administrator authority and set/change the setting.
- Execute the communication setup utility with administrator authority from Excel for setting/changing.
- Execute Excel with Administrator authority*2 and set/change the setting.

*2 : When executing Excel with administrator authority, the operations such as opening the file by dragging and dropping cannot be executed.

CHAPTER 5 MX Sheet MENU SELECTION METHOD

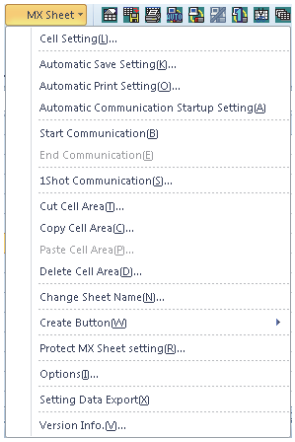
This chapter explains the displaying method and details of the MX Sheet menu options.

Screen display

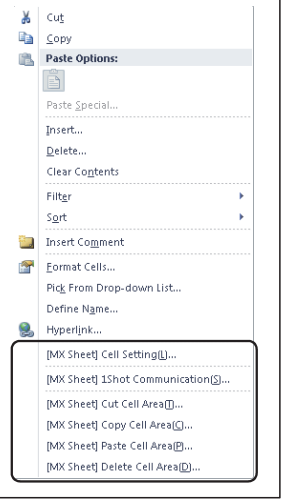
- **Select the <<Add-Ins>> tab ⇒ [MX Sheet] *1**
- **Specify the cell area and right-click the mouse.**

*1 : When using Microsoft® Excel® 2003, select [MX Sheet] on the menu bar.
Display the toolbar by selecting [View] ⇒ [Toolbars] on the menu bar, and select "MX Sheet".

<<Add-Ins>> tab



Right-click of mouse



Remark

If the Excel spreadsheet type is other than the worksheet, the MX Sheet menu is not displayed. When using MX Sheet, set the setting on the worksheet.

(1) MX Sheet menu details

The following table details the items of the MX Sheet menu.

Item			Description	Reference Section
Menu bar	Icon	Right-click		
Cell Setting		[MX Sheet] Cell Setting	Set the cell setting.	Page 32, CHAPTER 6
Automatic Save Setting		-	Set the automatic save setting.	Page 110, CHAPTER 7
Automatic Print Setting		-	Set the automatic print setting.	Page 117, CHAPTER 8
Automatic Communication Startup Setting		-	Set the automatic communication startup setting.	Page 120, CHAPTER 9
Start Communication		-	Start the communication.	Page 122, Section 10.1
End Communication		-	End the communication. *1	Page 125, Section 10.2
1 Shot Communication		[MX Sheet] 1 Shot Communication	Perform 1 shot communication.	Page 126, CHAPTER 11
Cut Cell Area		[MX Sheet] Cut Cell Area	Cut a cell area	Page 128, Section 12.1
Copy Cell Area		[MX Sheet] Copy Cell Area	Copy a cell area.	Page 129, Section 12.2
Paste Cell Area		[MX Sheet] Paste Cell Area	Paste a cell area*2	Page 130, Section 12.3
Delete Cell Area		[MX Sheet] Delete Cell Area	Delete a cell area.	Page 132, Section 12.4
Change Sheet Name		-	Change the Excel spreadsheet name.	Page 133, CHAPTER 13
Create Button	-	-	-	-
Start Communication Button	-	-	Create the Start Communication Button.	Page 134, Section 14.1
End Communication Button	-	-	Create the End Communication Button.	Page 138, Section 14.2
1 Shot Communication Button	-	-	Create the 1 Shot Communication Button.	Page 139, Section 14.3
Protect MX Sheet Setting	-	-	Protect the MX Sheet setting.	Page 140, Section 15.1
Unprotect MX Sheet Setting	-	-	Unprotect the MX Sheet setting.	Page 143, Section 15.2
Options	-	-	Set the error log options.	Page 144, Section 16.1
Setting Data Export	-	-	Execute setting data export.	Page 146, CHAPTER 17
Version Info.	-	-	Display the MX Sheet version.	Page 152, Appendix 1

*1 : Can be selected after start of communication.

*2 : Can be selected after the cell area is cut or copied.

CHAPTER 6 CELL SETTING

This chapter explains cell setting required to operate MX Sheet.

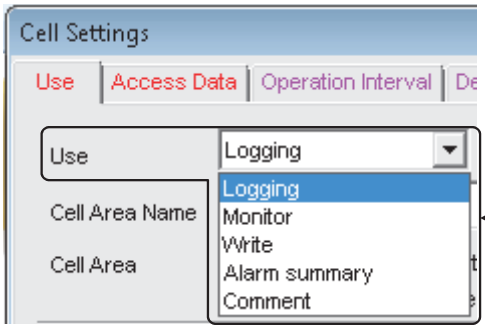
6.1 Operation of Cell Settings Screen

This section explains the displaying procedure and setting item change of the Cell Settings screen.
In the Cell Settings screen, its setting items change automatically depending on the selected function.

Screen display

[MX Sheet] ⇨ [Cell Setting] ( )

The setting of the Cell Settings screen can be changed by selecting "Use" of the <<Use>> tab.



The following table shows the function outlines and relevant sections for options of "use".

Item	Function	Reference
Logging	Set when using the logging function.	Page 33, Section 6.2
Monitor	Set when using the monitor function.	Page 70, Section 6.3
Write	Set when using the write function.	Page 80, Section 6.4
Alarm summary	Set when using the alarm summary function.	Page 89, Section 6.5
Comment	Set when using the comment display function.	Page 99, Section 6.6

Point

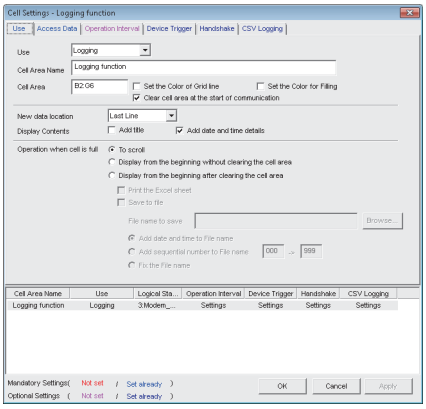
- Inverter communication/Robot controller communication is not supported other than "Logging".
- A system label*1 can also be set on the Cell Settings screen where a label can be set.
- When using labels, do not install MX Component using the ACT Version.
  For the installation using the ACT Version, refer to the following manual.
  MX Component Version 4 Operating Manual

*1 : There are two kinds of system labels; system label Ver.1 and system label Ver.2.
For the differences between system label Ver.1 and system label Ver.2, refer to the HELP of MELSOFT Navigator.
For their respective creation methods, refer to the following manual.
MX Component Version 4 Operating Manual

6.2 When "Logging" is Selected

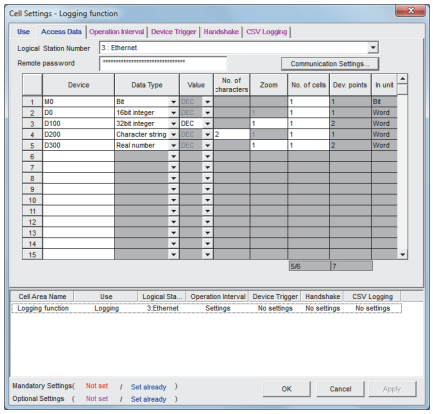
This section explains the Cell Settings screen when "Logging" is selected from "Use" of the <<Use>> tab.

<<Use>> tab



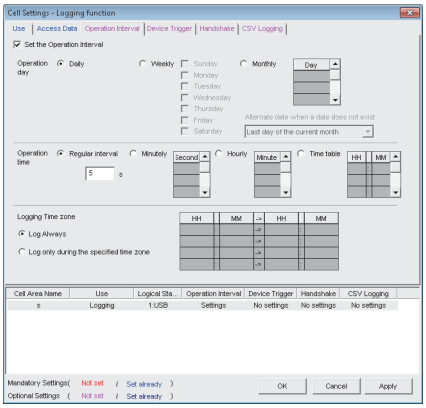
Required setting
☞ Page 34, Section 6.2.1

<<Access Data>> tab



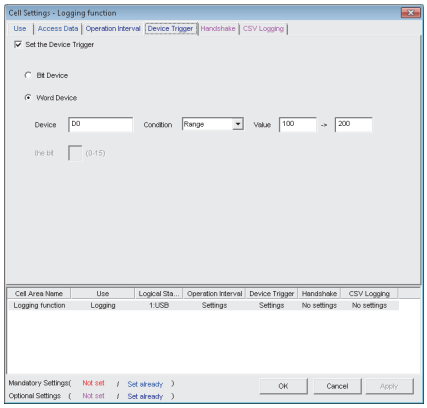
Required setting
☞ Page 41, Section 6.2.2

<<Operation Interval>> tab



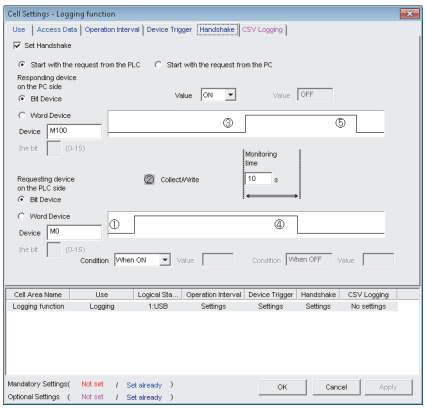
Required setting
☞ Page 47, Section 6.2.3

<<Device Trigger>> tab



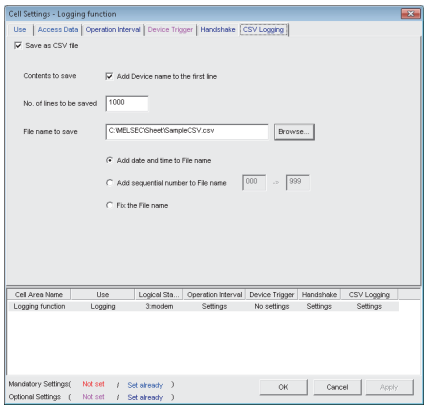
Set as necessary
☞ Page 54, Section 6.2.4

<<Handshake>> tab



Set as necessary
☞ Page 57, Section 6.2.5

<<CSV Logging>> tab

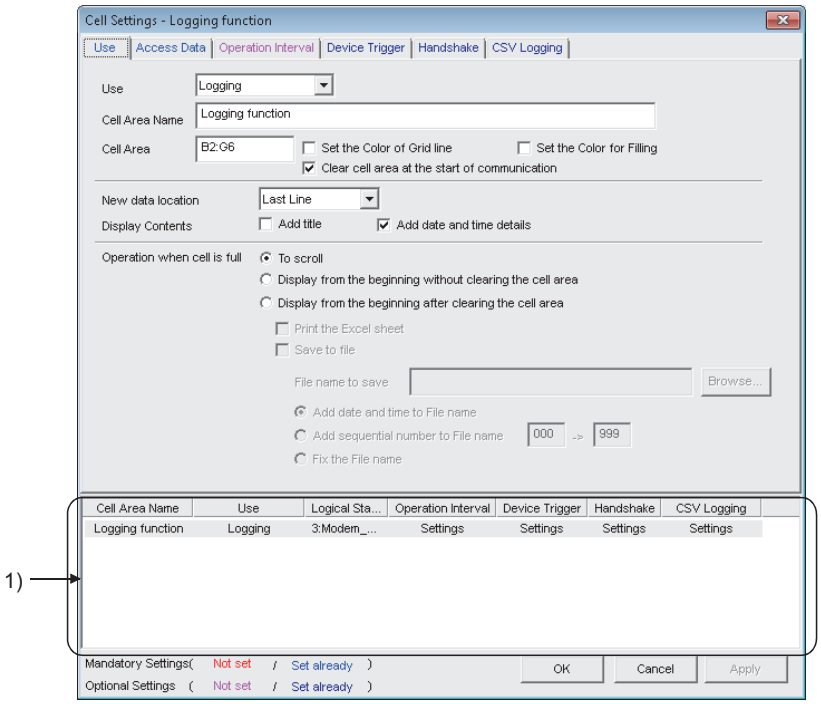


Set as necessary
☞ Page 67, Section 6.2.6

6.2.1 Setting of the <<Use>> tab

This section explains the setting of the <<Use>> tab for use of the logging function.
on the <<Use>> tab, set the cell area, logging data display position, displayed content, and operation when the cell is full.

Screen display



Display contents

Item	Description	Reference
Use	Set the function to be used for the specified cell area. Select "Logging" when using the logging function.	-
Cell Area Name	Set the name of the specified cell area. (Maximum number of cell area names : 100)	
Cell Area	Enter the value to specify the cell area.	Page 35, (1) in this section
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	Page 36, (2) in this section
Set the Color for Filling	Set whether the specified cell area is colored or not.	
Clear cell area at the start of communication	When "Clear cell area at the start of communication" is selected, the data in the cell area specified at the start of communication is cleared. (Default: selected)	Page 36, (3) in this section
New data location	Set the latest data display position of the logging data. • Last Line The latest data is displayed at the lost of the specified cell area. • First Line The latest data is displayed at the first of the specified cell area.	Page 37, (4) in this section
Display Contents	Set whether the title and the date and time are added to the displayed logging data or not.	Page 37, (5) in this section

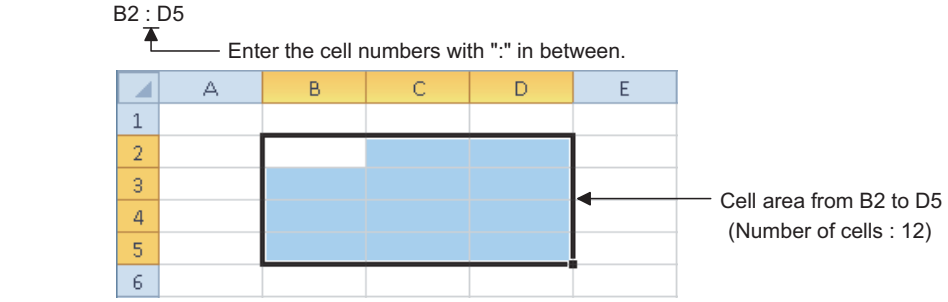
Item	Description	Reference
Operating when cell is full	Set the operation to be performed when the specified cell area is full. • To scroll The displayed content are scrolled and displayed. • Display from the first without clearing the cell area The data currently displayed in the cell area are overwritten and logging is resumed. Before logging is resumed, the Excel spreadsheet can be printed and saved. • Display from the first after clearing the cell area The data displayed in the cell area are erased and logging is resumed. Before logging is resumed, the Excel spreadsheet can be printed and saved.	Page 39, (6) in this section
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 40, (7) in this section

(1) "Cell Area"

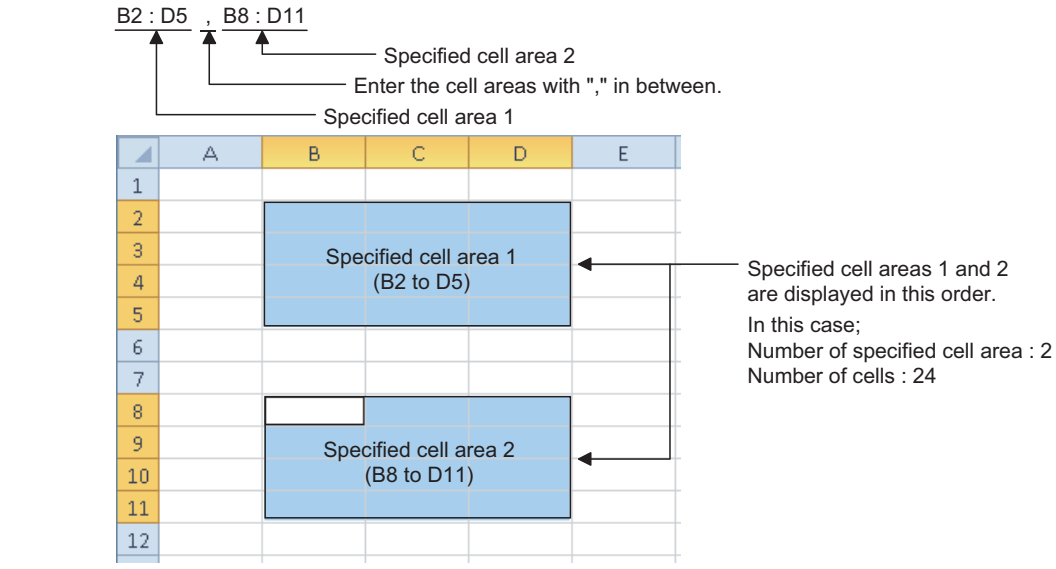
Set the cell area to be used by the logging function.

(a) Setting examples

<When a single cell range is specified (B2 to D5)>



<When multiple cell areas are specified (B2 to D5 (Specified cell area 1) and B8 to D11 (Specified cell area 2))>



(b) Setting ranges

The following shows the available setting ranges for the cell area and number of specified cell areas.

- Cell area: When date and time are added: 255 columns 65536 rows
  When date and time are not added: 256 columns 65536 rows
- Number of specified cell areas: Up to 16

(2) "Set the Color of Grid line" and "Set the Color for Filling"

Set the colors of cell area grid lines and cell filling.

Depending on the selection, all area may be colored gray.

For details, refer to the following consideration.

☞ Page 7, OPERATING CONSIDERATIONS

(3) "Clear cell area at the start of communication"

Set whether the cell area is cleared or not at the start of communication.

(a) Display example in the case where "Clear cell area at the start of communication" is selected.

<Before the start of communication>

2012/06/25 Mon 13:00:00	15	37
2012/06/25 Mon 13:00:05	16	39
2012/06/25 Mon 13:00:10	17	42

↓

<At the start of communication>

↓

<At the completion of the first collection>

2012/05/24 Mon 15:00:00	31	102

(b) Display example in the case where "Clear cell area at the start of communication" is not selected.

<Before the start of communication>

2012/06/25 Mon 13:00:00	15	37
2012/06/25 Mon 13:00:05	16	39
2012/06/25 Mon 13:00:10	17	42

↓

<At the start of communication>

2012/06/25 Mon 13:00:00	15	37
2012/06/25 Mon 13:00:05	16	39
2012/06/25 Mon 13:00:10	17	42

↓

<At the completion of the first collection>

2012/06/25 Mon 13:00:00	15	37
2012/06/25 Mon 13:00:05	16	39
2012/06/25 Mon 13:00:10	17	42
2012/06/25 Mon 15:00:00	31	102

(4) "New data location"

Set the newest data location when the logging function is used.

<Display example>

- When "Last Line" is selected

2012/05/23 Wed 18:28:17	21	37	Old data
2012/05/23 Wed 18:28:22	26	39	
2012/05/23 Wed 18:28:27	30	42	
2012/05/23 Wed 18:28:32	35	44	
2012/05/23 Wed 18:28:37	39	46	New data

- When "First Line" is selected.

2012/05/23 Wed 18:31:06	21	16	New data
2012/05/23 Wed 18:31:01	17	13	
2012/05/23 Wed 18:30:56	12	11	
2012/05/23 Wed 18:30:51	8	9	
2012/05/23 Wed 18:30:46	3	6	Old data

(5) "Display Contents"

(a) "Add title" check box

Set whether the date and time and the title for device name is displayed or not at the first line of the "Cell Area". When displaying the title, select the check box.

<Display example>

When "Add date and time details" is selected and the devices D100 to D103 are set

The device name set on the <<Access Data>> tab is displayed.

	Date Time	D100	D101	D102	D103
Title →					
Collection data	2012/06/25 Mon 13:24:14	30	100	0	37
	2012/06/25 Mon 13:24:17	40	80	0	55

Point

- The title display line is not the target of cell area clear at the start of communication or clear when cell is full.
- When the Cell Area is set at multiple locations, the title is displayed for only the Cell Area specified first.
  <Example>
  When the Cell Area on the <<Use>> tab is set to B2:E4, B6:E8)

	A	B	C	D	E
1					
2		Date Time	D100	D101	D102
3		2012/06/28 Thu 20:41:26	37	0	100
4		2012/06/28 Thu 20:41:31	41	0	95
5					91
6		2012/06/28 Thu 20:41:36	45	0	88
7		2012/06/28 Thu 20:41:41	48	0	82
8		2012/06/28 Thu 20:41:46	52	0	0

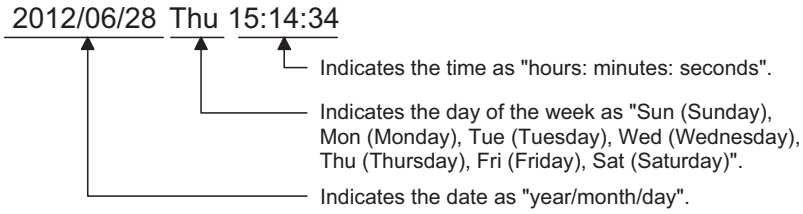
(b) "Add date and time details" check box

Set whether the logging date and time are added to the cell area set in the "Cell Area" or not.

When adding the date and time, select the check box.

In this case, the leftmost column of the logging data area is used for the date and time. (One item of logging data decreases.)

The date and time column displays the date and time of the personal computer where MX Sheet is installed.


2012/06/28 Thu 15:14:34
Indicates the time as "hours: minutes: seconds".
Indicates the day of the week as "Sun (Sunday), Mon (Monday), Tue (Tuesday), Wed (Wednesday), Thu (Thursday), Fri (Friday), Sat (Saturday)".
Indicates the date as "year/month/day".

Remark

The above date and time can be edited on Excel.

If the cell setting is edited again after editing on Excel, the setting on Excel are invalid.

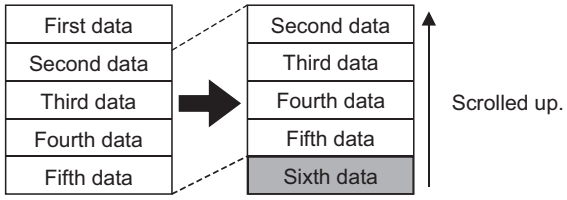
(6) "Operating when cell is full"

Set the operation to be performed when the cell area is full of logging data.

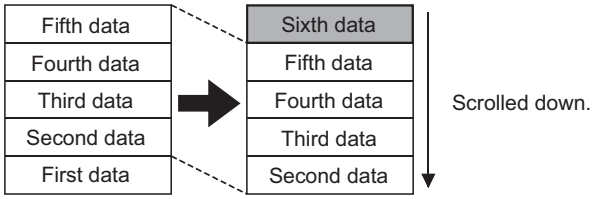
When "New data location" is set for "First Line", "Display from the beginning without clearing the cell area" cannot be selected.

(a) When "To scroll" is selected

<When "New data location" is set for "Last Line">

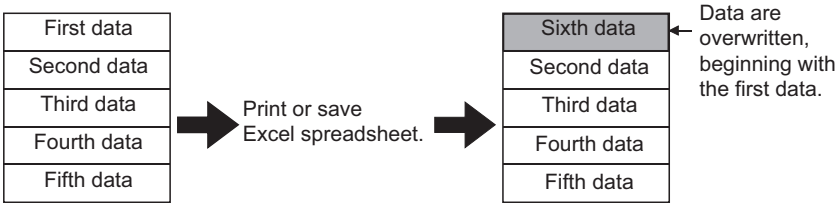


<When "New data location" is set for "First Line">



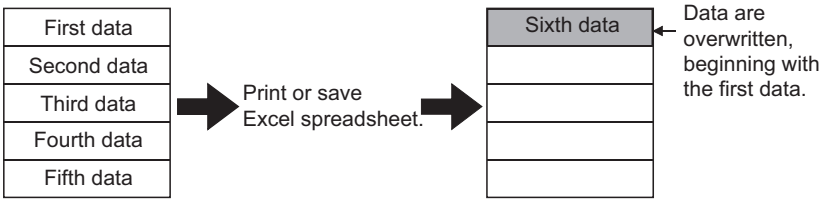
(b) When "Display from the beginning without clearing the cell area" is selected

When the cell is full, Excel spreadsheet print or Excel book save can also be performed.



(c) When "Display from the beginning after clearing the cell area" is selected

When the cell is full, Excel spreadsheet print or Excel book save can also be performed.



(d) When "Print the Excel spreadsheet" is selected

The Excel spreadsheet is printed when the cell is full.

After completion of print, all data are erased and logging is resumed.

This item can be selected when "Operating when cell is full" is set to (b) or (c).

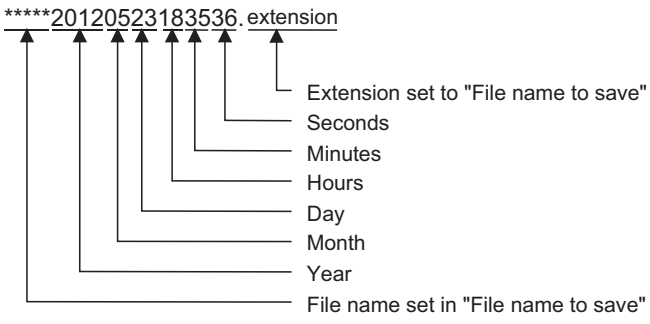
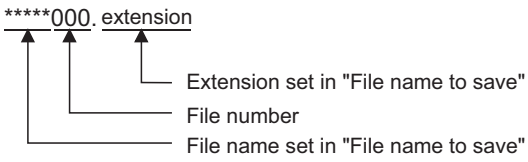
(e) When "Save to file" is selected

The Excel book is saved when the cell is full.

After completion of save, all data are erased and logging is resumed.

This item can be selected when "Operating when cell is full" is set to (b) or (c).

When choosing "Save to file", set the following settings for the file where data is saved.

Item	Description
File name to save	The storage location and file name is set for the Excel book to be saved when the cell is full. *1 The Excel file (.xls, .xlsx*2, .xlsm*2, .xlsb*2) or HTML file (.htm)*3 or CSV file (.csv) can be set as the file type. *4
Add date and time to File name	The file set in "File name to save" saves data with the date and time added to its file name. The following shows a file name format when data is saved. 
Add sequential number to File name	The file set in "File name to save" saves data with a number added to its file name. A serial number can be set within the range of 000 to 999. When the number is reached to the last, the file of the first number is overwritten by the newly saving file. The following shows the file name format when data is saved. 
Fix the File name	The file set in "File name to save" is overwritten by data.

*1 : A UNC path name (\\server name\path name) cannot be specified as a file name. After assigning the network drive, specify the path name.

*2 : .xlsx, .xlsm, and .xlsb are Workbook-format extensions added to Microsoft® Excel® 2007 or later.

*3 : For the continuous operation when saving data automatically in HTML format, refer to the following appendix.
☞ Page 164, Appendix 6.

*4 : In the case of an Excel file or HTML file, the whole Excel book is saved. However, in the case of a CSV file, only the data of the target sheet is saved.

(7) Preset cell areas

The cell areas already set to the Excel book are displayed.

The following operations are available by selecting the cell area name in the "preset cell areas".

(a) Reading the settings

Select and double-click the cell area name to read the settings of the selected cell area name to the Cell Settings screen.

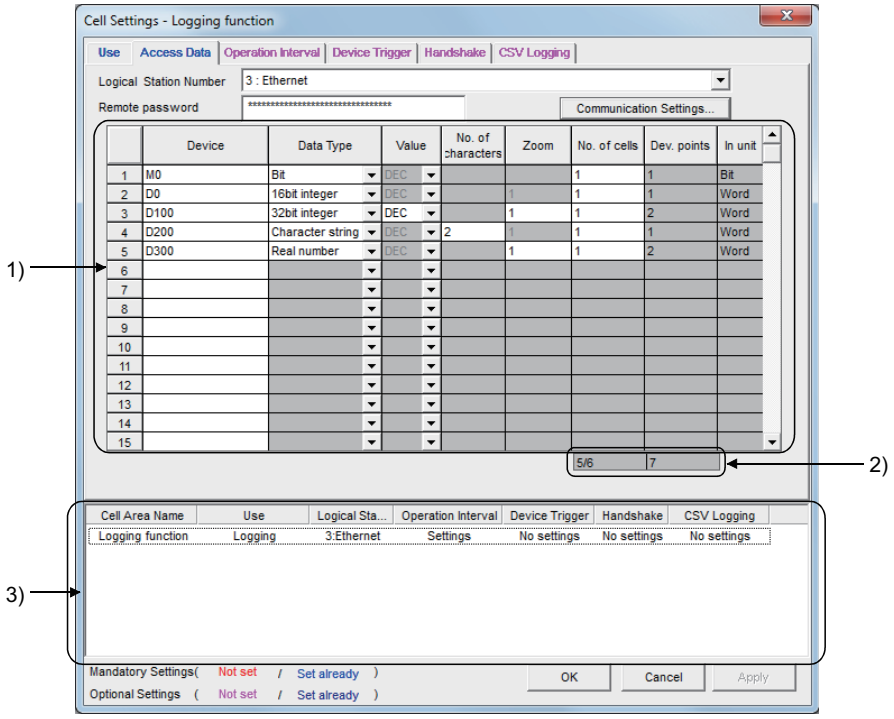
(b) Deleting the settings

Select the cell area name and press the Delete key to erase all the settings of the selected cell area name.

6.2.2 Setting of the <<Access Data>> tab

This section explains the setting of the <<Access Data>> tab for use of the logging function.
On the <<Access Data>> tab, set the logical station number required for communication with the programmable controller CPU and the device data to be collected in the cell area.

Screen display



Display contents

Item	Description	Reference
Logical Station Number	Select the logical station number required for performing communication.	Page 42, (1) in this section
Communication Settings... button	Used to start the communication setup utility to set a new logical station number and change the settings.	Page 42, (2) in this section
Remote password *1	Enter the password when the password is set to the connection target programmable controller CPU.	Page 42, (3) in this section
1) (Access data)	Set the devices or labels to be logged.	Page 42, (4) in this section
2) (Number of set devices)	The number of devices currently set is displayed.	Page 46, (5) in this section
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

*1 : "Remote password" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for the password function compatible module.

(1) "Logical Station Number"

Select the logical station number required for communication.

If the logical station number is already set, the number is displayed in the list box and can be selected.

If the logical station number is not set, click the Communication Settings... button and set a new logical station number.

(2) Communication Settings... button

This button is used to start the communication setup utility to set a new logical station number and change the settings.

Select "Run as administrator" when the screen is displayed asking if execute programs with administrator authority or not.

After starting the communication setup utility, click on the Wizard... button and set a new logical station number and change the settings with the Communication Setting Wizard.

For the detailed explanation of the communication setup utility and Communication Setting Wizard, refer to the following manual.

MX Component Version 4 Operating Manual

(3) "Remote password"

"Remote password" box is displayed when the setting of the logical station number selected in "Logical Station Number" includes information on the connection to the module with the password function.

When the password is set to the connection target programmable controller CPU, enter the password.

It need not be entered when the password is not set.

(4) Access data

(a) Order of display

Data are displayed in the cell area in the order of the numbers shown on the left of the <<Access Data>> tab.

<Device data display example>

Setting example of the <<Access Data>> tab

	Device	Data Type	Value	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	16bit integer	DEC		1	3	3	Word
2	W0	16bit integer	DEC		1	3	3	Word
3	B0	Bit	DEC			3	3	Bit

Data numbers

The device data are displayed on Excel as shown below.

Displayed in order of data numbers.

Data No. 1 Data No. 2 Data No. 3

D0	D1	D2	W0	W1	W2	B0	B1	B2
18	14	0	0	0	0	0	0	0

(b) "Device"

Enter a device or label to be accessed.

- When entering a device, enter a device name and device number in this order.
- When entering a label, enter the label name.
- The applicable data types are Bit and Word.
- When entering a label, enter other than structured data type label and array type label.
- When inverter communication setting/robot controller communication setting is set to the logical station number, input the monitor type of inverter/robot controller in decimal number.

For the accessible devices, refer to the following manual.

☞ Page 27, Section 3.2

(c) "Data Type"

Set the data type to be displayed in the cell.

When a label is specified to "Device", the corresponding data type of the entered label is displayed.

Item	Available Device	Description
Bit	Bit device	The bit devices set in "Device" are displayed in a single cell in units of one bit.
	Word device (Bit specification)	Designated bits for word device set in "Device" are displayed in a single cell in units of one bit (e.g. D0.0).
16 bit integer (-32768 to 32767)	Bit device *1	Displayed in a single cell in units of 1 word (16 bits), starting with the 16 bit integer device number set in "Device". *2
	Word device	Displayed in a single cell in units of 1 word, starting with the device number set in "Device".*2
32 bit integer (-2147483648 to 2147483647)	Bit device *1	Displayed in a single cell in units of 2 words (32 bits), starting with the device number set in "Device".*2
	Word device	Displayed in a single cell in units of 2 words, starting with the device number set in "Device". *2
	Double word device	Data of device number set to "Device" are displayed in a single cell in units of 1 device (32-bit). *2
	Monitor type	The monitor types set in "Device" are displayed in a single cell in units of 2 words. *2
Character string	Bit device *1	The data of the device number set in "Device" are displayed in the cell as character strings.*3
	Word device	The data of the device number set in "Device" are displayed in the cell as character strings.*3
Real number ($\pm 2^{-126} \leqq \lvert value \rvert < \pm 2^{128}$, 0)	Bit device *1	Displayed in a single cell in units of 2 words (32 bits), starting with Real number the device number set in "Device".*2
	Word device	Displayed in a single cell in units of 2 words, starting with the device number set in "Device".*2

*1 : When R motion CPU and Q motion CPU, displayed in a single cell in units of one bit.
*2 : The displayed value changes depending on the "Zoom" setting. Refer to (f) for details.
*3 : The unit and the number of displayed characters of the read data change depending on the "No. of characters" setting. Refer to (e) for details.

(d) "Value"

Select the display format of the value to be displayed in the cell from DEC and HEX.

Depending on the "Data Type", the "Value" and "Zoom" can be selected/set as shown below.

Item			Cell data display
Data Type	Value	Zoom	
Bit	Not applicable	Not applicable	0 or 1
16 bit integer	DEC	Applicable	Displayed in decimal
	HEX	Not applicable	Display in 4-digit hexadecimal (Example: 03EB)
32 bit integer	DEC	Applicable	Displayed in decimal
	HEX	Not applicable	Display in 8-digit hexadecimal (Example: 03EB03EA)
Character String	Not applicable	Not applicable	Character string is displayed (Example: ABCD)
Real number	Not applicable	Applicable	Real number is displayed (Example: 1.36E-36)

(e) "No. of characters"

Set the number of characters to be displayed in a single cell.

Setting range: 40

Depending on the value set in "No. of characters" and device data, the character strings may not be displayed in the cell.

The following are the examples of setting 1 to 4 in "No. of characters".

<Example>

When displaying the character strings stored in D0 to D3

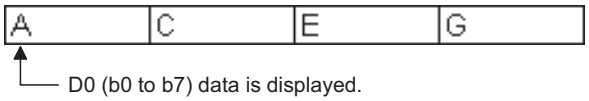
	b15 to b8	b7 to b0
D0	B	A
D1	D	C
D2	F	E
D3	H	G

<When "No. of characters" is set to "1">

The data is displayed in a single cell in units of 1 word (16 bits).

Only the character stored in b0 to b7 of D0 is displayed.

The character stored in b8 to b15 of D0 is not displayed.



D0 (b0 to b7) data is displayed.

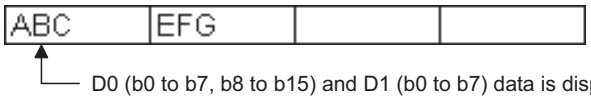
<When "No. of characters" is set to "2">

The data is displayed in a single cell in units of 1 word (16 bits).

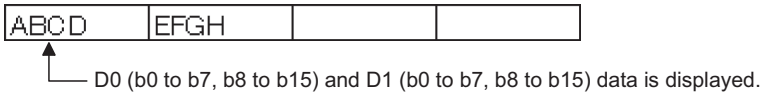
The character strings stored in b0 to b7 and b8 to b15 are displayed in this order.

D0 (b0 to b7, b8 to b15) data is displayed.

<When "No. of characters" is set to "3">
The data is displayed in a single cell in units of 2 words (32 bits).
The character strings stored in D0 (b0 to b7, b8 to b15) and D1 (b0 to b7) are displayed.
The character string stored in b8 to b15 of D1 is not displayed.

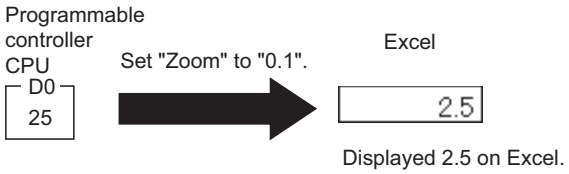


<When "No. of characters" is set to "4">
The data is displayed in a single cell in units of 2 words (32 bits).
The character strings stored in D0 (b0 to b7, b8 to b15) and D1 (b0 to b7, b8 to b15) are displayed in this order.



(f) "Zoom"

The device value read from the programmable controller CPU is multiplied by the zoom ratio and displayed in the cell.
When "Data Type" is set to "Bit" or "Character string", the "Zoom" setting is not possible.
When the "Value" is set to "HEX", the "Zoom" setting is not possible.
When inverter communication setting/robot controller communication setting is set to the logical station number, '1' is displayed.
Setting range: 0.001 to 1000



Displayed 2.5 on Excel.

(g) "No. of cells"

Set the number of cells to be used for the device set in "Device" within the area specified in "Cell Area".
When the system labels are specified to devices, or inverter communication setting/robot controller communication setting is set to the logical station number, '1' is displayed.

<Device data display example>

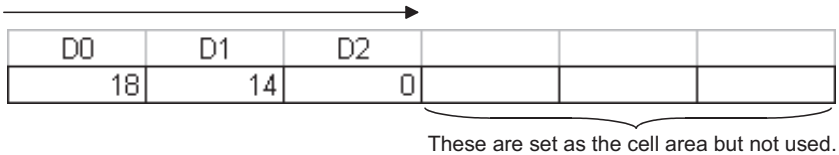
Setting example of the <<Access Data>> tab

	Device	Data Type	Value	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	16bit integer	DEC		1	3	3	Word
2								
3								
4								

Device: D0
Data type: 16 bit integer
Number of cells: 3

The device data are displayed on Excel as shown below.

3 points are displayed in order, starting with D0.



D0	D1	D2			
18	14	0			

These are set as the cell area but not used.

(h) "Dev. Points"

The points of the devices to be consecutively read starting with the device number set in "Device" are displayed.

When inverter communication setting/robot controller communication setting is set to the logical station number, '2' is displayed.

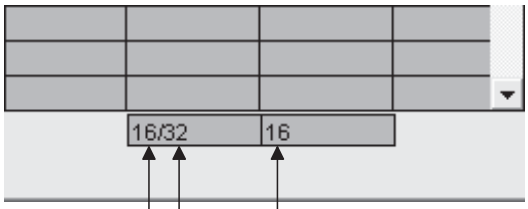
(i) "In unit"

The unit of the device to be shown in the cell is displayed.

When inverter communication setting/robot controller communication setting is set to the logical station number, "Word" is displayed.

(5) The number of set devices

The number of device points and others set to the cell area are displayed.



Indicates the number of device points set for the logging function in the cell area.

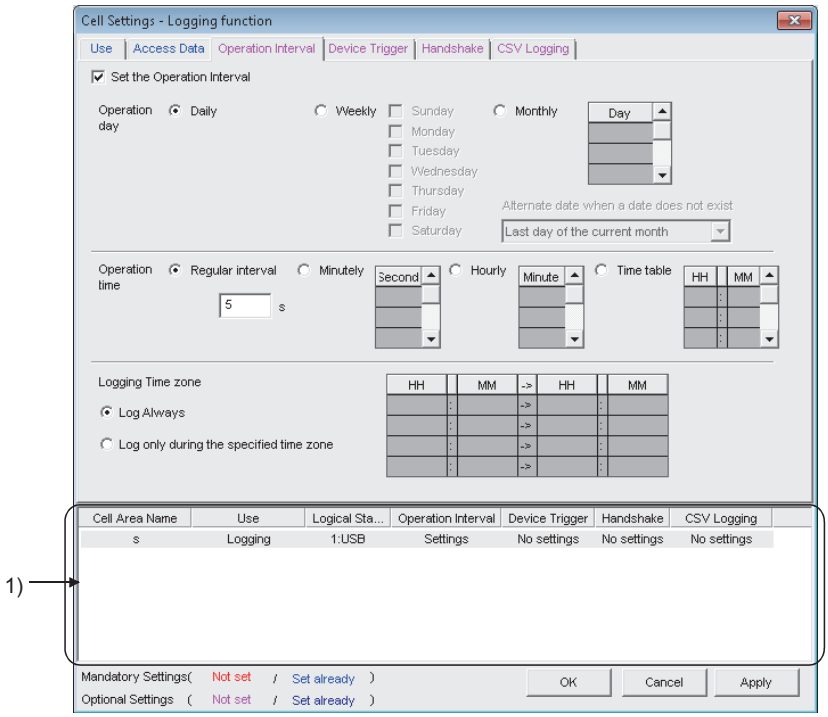
Indicates the number of cells available for the cell area.

Indicates the number of cells where the device is set in the cell area.

6.2.3 Setting of the <<Operation Interval>> tab

This section explains the setting of the <<Operation Interval>> tab for use of the logging function.
On the <<Operation Interval>> tab, set the day, time and time zone of the activation of the function for the cell area.

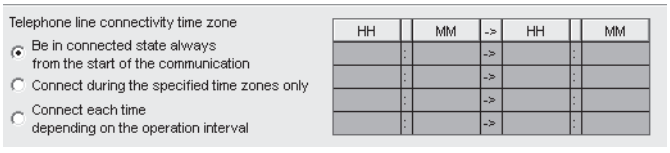
Screen display



Display contents

Item	Description	Reference
Set the Operation Interval	Set the operation of the cell area valid or invalid.	Page 48, (1) in this section
Operation day	Set the operation day of the logging activation.	Page 48, (2) in this section
Operation time	Set the operation time of the logging activation.	Page 49, (3) in this section
Logging Time zone*1	Set the time zone of the logging activation.	Page 50, (4) in this section
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

*1 : If the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for modem communication, "Logging Time zone" is switched to "Telephone line connectivity time zone".


Telephone line connectivity time zone
Be in connected state always from the start of the communication
Connect during the specified time zones only
Connect each time depending on the operation interval
HH
MM
HH
MM

Item	Description	Reference
Telephone line connectivity time zone	Sets the timing of connection and disconnection of the telephone line.	Page 50, (5) in this section

(1) "Set the Operation Interval"

To set the settings of cell area invalid or to use the function of cell area for 1 shot communication only, clear the check box. (Do not clear the check mark for the case of ordinary operation.)

(2) "Operation day"

Set the operation day of device data collection.

(a) When "Daily" is selected

Operation is performed every day.

(b) When "Weekly" is selected

Operation is performed on the specified day of the week only.
Multiple days of the week can be set.

(c) When "Monthly" is selected

Operation is performed on the specified days only.
If the specified day does not exist in some months, an alternate day can be specified.
Number of days that can be set: 31
<When "15th" is set>
Operation is performed on the 15th every month, e.g. January 15, February 15, March 15.
<When "31st" is set>
Excepting February, April, June, September and November, operation is performed on the 31st every month.
For February, April, June, September and November, set the alternate day and processing in "Alternate day when a date does not exist".
The following table shows the setting items of "Alternate day when a date does not exist".

Item	Description
Last day of the current month	Operation is performed on the last day of February, April, June, September or November.
First day of the next month	Operation is performed on the first day of the next month.
No operation	Operation is not performed in February, April, June, September and November.

(3) "Operation time"

Set the operation time of device data collection.

(a) When "Regular interval" is selected

Device data is collected at the set second intervals.

When modem communication is used and "Connect each time depending " is set in "Telephone line ", set 30 seconds or more to "Regular interval".

When set for lesser "seconds" than the actual communication time, the fixed interval communication cannot be established. Hence, set for longer than the actual communication time.

For Communication time, refer to the following performance value.

☞ Page 152, Processing Speed of MX Sheet

Setting range: 0.001 to 0.999 (in units of 0.001 seconds), 1 to 3600 (in units of 1 second)

When the date and time are added, the date and time displayed on the Excel spreadsheet is in the "yyyy/mm/dd ddd hh:mm:ss" format if the setting is 0.001 to 0.999 seconds.

<Example>

When 0.2 seconds interval is set

Date	D0	D1	D2
2012/06/28 Thu 20:41:07	1	2	3
2012/06/28 Thu 20:41:08	11	12	13
2012/06/28 Thu 20:41:08	21	22	23
2012/06/28 Thu 20:41:08	31	32	33
2012/06/28 Thu 20:41:08	41	42	43
2012/06/28 Thu 20:41:08	51	52	53
2012/06/28 Thu 20:41:09	61	62	63

(b) When "Minutely" is selected

Device data is collected at the specified second every minute.
Number of times that can be set: 60

(c) When "Hourly" is selected

Device data is collected at the specified minute every hour.
Number of times that can be set: 60

(d) When "Time table" is selected

Device data is collected at the specified time.
Number of times that can be set: 50

(4) "Logging Time zone"

Set the time zone for logging.

(a) When "Log Always" is selected

Logging is always performed at the specified operation time of the operation day.

(b) When "Log only during the specified time zone" is selected

Logging is performed in the specified time zone only.
Number of settings: 4
When "Operation day" is set to "Weekly" or "Monthly", do not set the following setting that is span two days.

HH		MM	->	HH		MM
22	:	0	->	8	:	0
	:		->		:	
	:		->		:	
	:		->		:	

(5) "Telephone line connectivity time zone"

Set the time zone for connection with the telephone line.

(a) When "Be in connected state always from the start of the communication" is selected

The telephone line is connected upon start of MX Sheet communication, and is kept connected until termination of MX Sheet communication.

(b) When "Connect during the specified time zone only" is selected

The telephone line is connected only in the specified time zone.
Number of settings: 4
When "Operation day" is set to "Weekly" or "Monthly", do not set the following setting that is span two days.

HH		MM	->	HH		MM
22	:	0	->	8	:	0
	:		->		:	
	:		->		:	
	:		->		:	

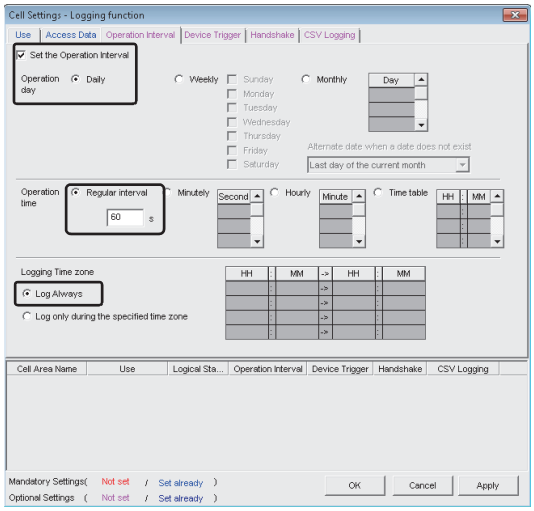
(c) When "Connect each time depending on the operation interval" is selected

The telephone line is connected and disconnected according to the settings of "Operation day" and "Operation time".

(6) Setting examples

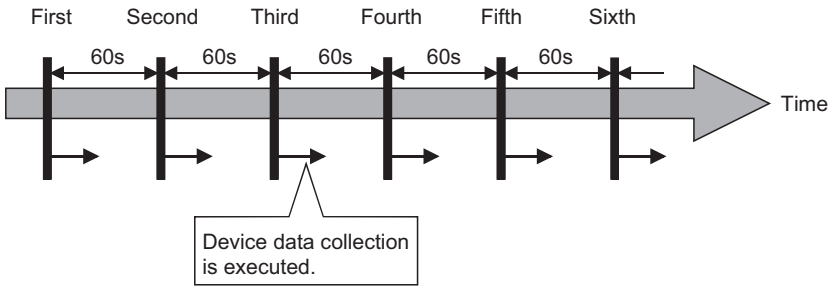
(a) When using communication other than modem communication (Log Always)

<Setting example>



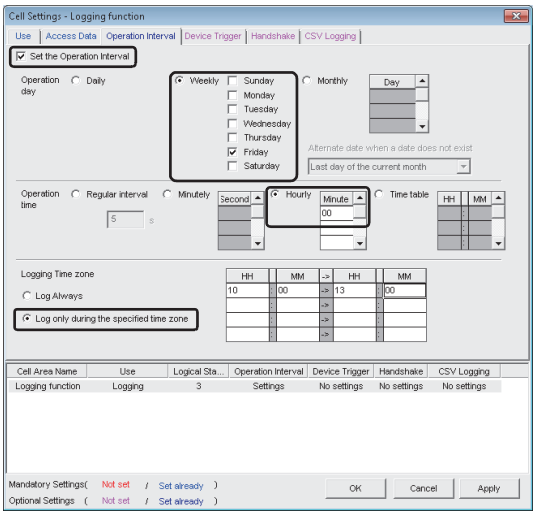
Set the Operation Interval : Selected
Operation day
Daily : Selected
Operation time
Regularinterval : 60 seconds
Logging Time zone
Log Always : Selected

<Operation timing>



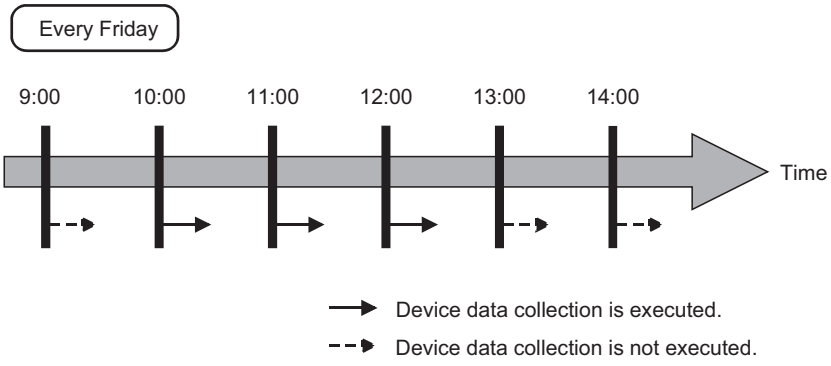
(b) When using communication other than modem communication (Log only during the specified time zone)

<Setting example>



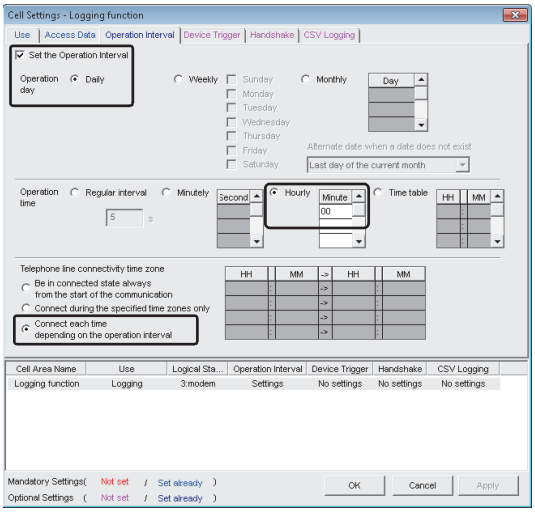
Set the Operation Interval : Selected
Operation day
Weekly : Selected
Friday : Selected
Operation time
Hourly : 0 (minutes)
Logging Time zone
Log only during the specified time zone: Selected
Time zone : 10:00 to 13:00

<Operation timing>



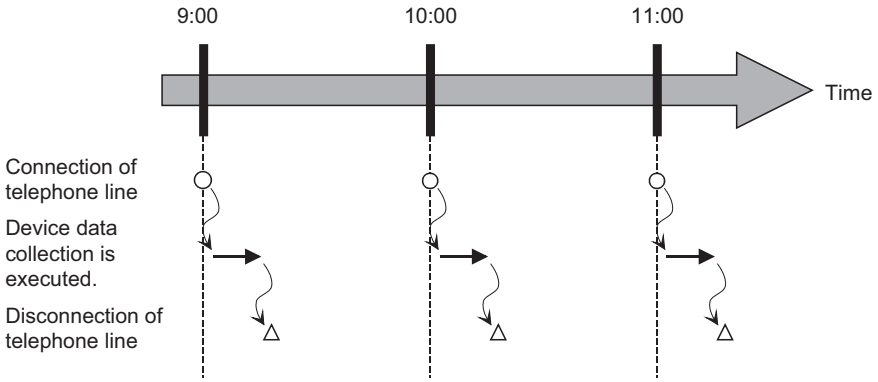
(c) When using communication other than modem communication (Log only during the specified time zone)

<Setting example>



Set the Operation Interval : Selected
Operation day
Daily : Selected
Operation time
Hourly : 0 (minutes)
Telephone line connectivity time zone
Connect each time depending on the operation interval : Selected

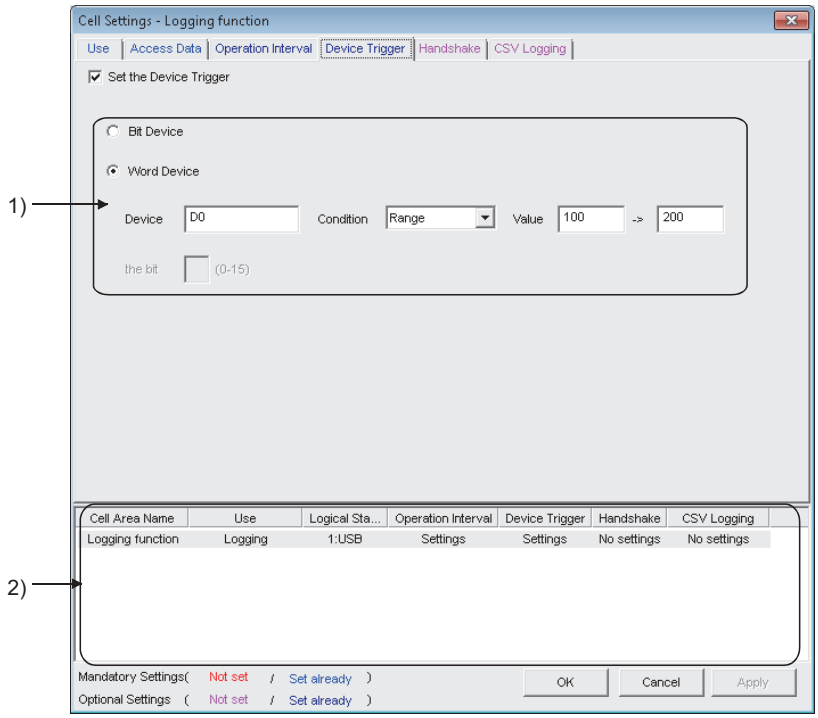
<Operation timing>



6.2.4 Setting of the <<Device Trigger>> tab

This section explains the setting of the <<Device Trigger>> tab for use of the logging function.
On the <<Device Trigger>> tab, set the device conditions for the device trigger.

Screen display



Display contents

Item	Description	Reference
Set the Device Trigger	Set when the device trigger is used.	Page 54, (1) in this section
1) (Device conditions)	Set the device or label conditions.	Page 54, (2) in this section
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

(1) "Set the Device Trigger"

When using the device trigger, be sure to select "Set the Device Trigger".

(2) Device conditions

Set the device conditions for the device trigger.

(a) Device type

Set the type of the device used for the device trigger.

Item	Description
Bit Device	Set when using a bit device for the device trigger.
Word Device	Set when using a word device or double word device for the device trigger, or the inverter communication setting/robot controller communication setting is set to the logical station number.

(b) "Device"

Enter the device or label used for the device trigger.

- When entering a device, enter a device name and device number in this order.
- When entering a label, enter the label name.
- The applicable data types are Bit and Word.
- When entering a label, enter other than structured data type label and array type label.
- When inverter communication setting/robot controller communication setting is set to the logical station number, input the monitor type of inverter/robot controller in decimal number.

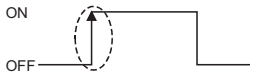
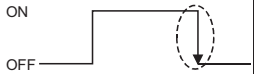
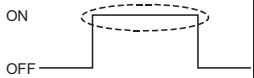
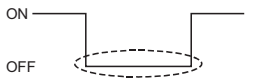
(c) "the bit"

Set the corresponding bit of the word device.

Setting range: 0 to 15

(d) "Condition"

Set the device trigger condition.

Item	Available Device	Description
When ON 	Bit device	Set when operation is to be performed only once when the bit device turns on.
	Word device	Set when operation is to be performed only once when the corresponding bit of the word device turns on (value: 1).
When OFF 	Bit device	Set when operation is to be performed only once when the bit device turns off.
	Word device	Set when operation is to be performed only once when the corresponding bit of the word device turns off (value: 0).
ON 	Bit device	Set when operation is to be performed while the bit device is on.
	Word device	Set when operation is to be performed while the corresponding bit of the word device is on (value: 1).
OFF 	Bit device	Set when operation is to be performed while the bit device is off.
	Word device	Set when operation is to be performed while the corresponding bit of the word device is off (value: 0).
=	Word device, Double word device	Set when operation is to be performed when the device value is equal to the "Value" setting.
<>	Word device, Double word device	Set when operation is to be performed when the device value is not equal to the "Value" setting.
<=	Word device, Double word device	Set when operation is to be performed when the device value is equal to or less than the "Value" setting.
<	Word device, Double word device	Set when operation is to be performed when the device value is less than the "Value" setting.
>=	Word device, Double word device	Set when operation is to be performed when the device value is equal to or greater than the "Value" setting.
>	Word device, Double word device	Set when operation is to be performed when the device value is greater than the "Value" setting.
Range	Word device, Double word device	Set when operation is to be performed when the device value is within the specified "Value" setting range.

(e) "Value"

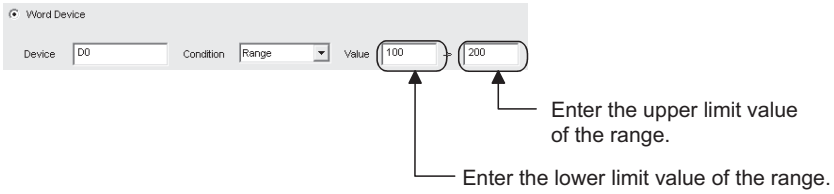
Enter the values used for "Condition".

Setting range:

- Word device (-32768 to 32767)
- Double word device (-2147483648 to 2147483647)
- When inverter communication setting/robot controller communication setting (-2147483648 to 2147483647)

<When "Range" is to "Condition">

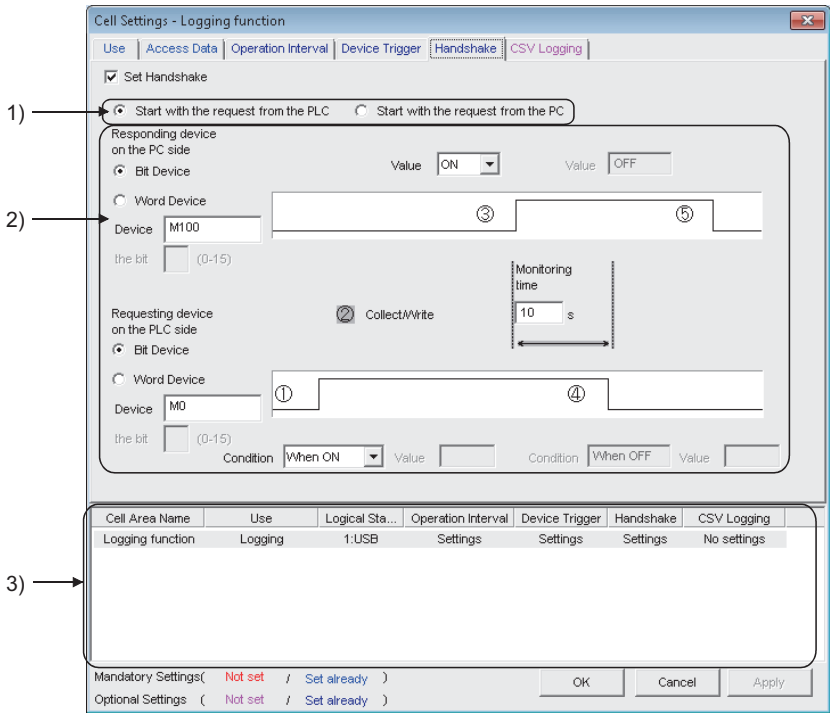
Enter the values in "Value" as shown below.



6.2.5 Setting of the <<Handshake>> tab

This section explains the setting of the <<Handshake>> tab for use of the logging function.
On the <<Handshake>> tab, set the handshake requesting source and handshake processing.

Screen display



Display contents

Item	Description	Reference
Set Handshake	Set when using a handshake.	Page 58, (1) in this section
1) (Requesting source setting)	Set the requesting source of the handshake.	Page 62, (2) in this section
2) (Handshake processing)	Set the handshake processing.	Page 62, (3) in this section
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

Point

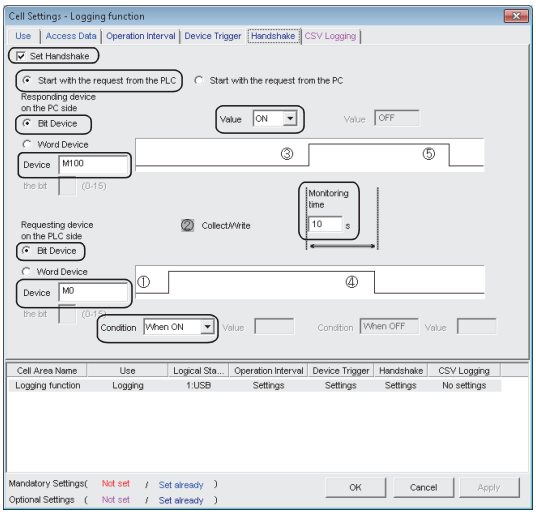
When inverter communication setting or Robot controller communication setting is set to the logical station number, handshake is not supported.

(1) Setting examples and operation timing

The following shows the handshake setting examples and operation timing.

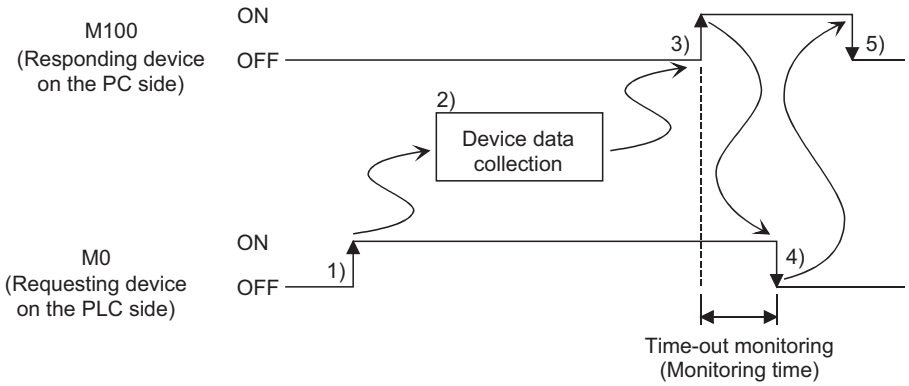
(a) When "Start with the request from the PLC" is selected (Device: Bit device)

<Setting example>



Set Handshake	: Selected
Start with the request from the PLC	: Selected
Responding device on the PC side	
Bit device	: Selected
Device	: M100
Value	: ON
Requesting device on the PLC side	
Bit device	: Selected
Device	: M0
Condition	: When ON
Monitoring time	: 10 seconds

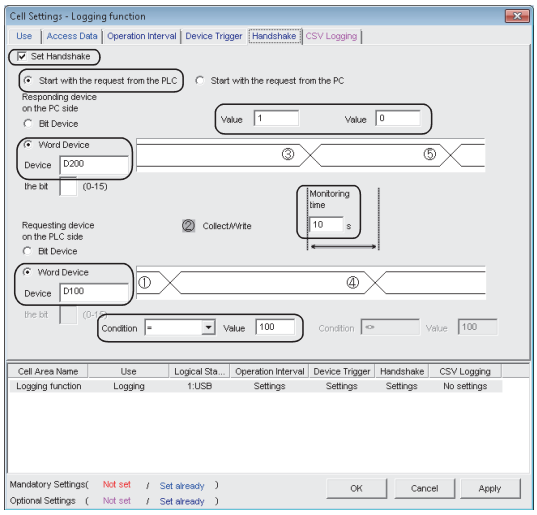
<Operation timing>



1) When M0 turns on, processing in 2) is started.
2) Device data is collected.
3) After device data is collected, M100 is turned on.
4) M0 is turned off.
5) M100 is turned off.

(b) When "Start with the request from the PLC" is selected (Device: Word device)

<Setting example>

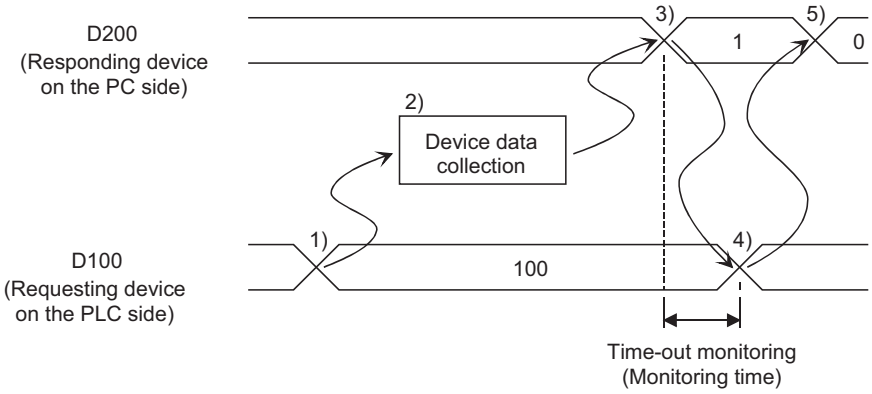


Set Handshake : Selected
Start with the request from the PLC : Selected
Responding device on the PC side
- Word device : Selected
- Device : D200
- Value : 1 (left), 0 (right)

Requesting device on the PLC side
- Word device : Selected
- Device : D100
- Condition : =
- Value : 100

Monitoring time : 10 seconds

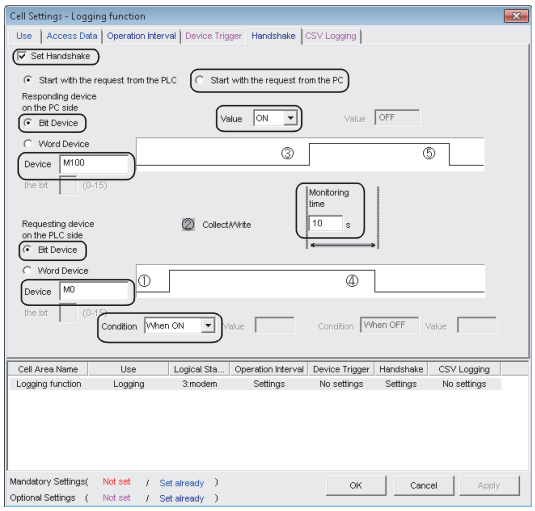
<Operation timing>



1) When the D100 value reaches 100, processing in 2) is started.
2) Device data is collected.
3) After device data is collected, the D200 value is changed to 1.
4) The D100 value is changed to other than 100.
5) The D200 value is changed to 0.

(c) When "Start with the request from the PLC" is selected (Device: Word device)

<Setting example>

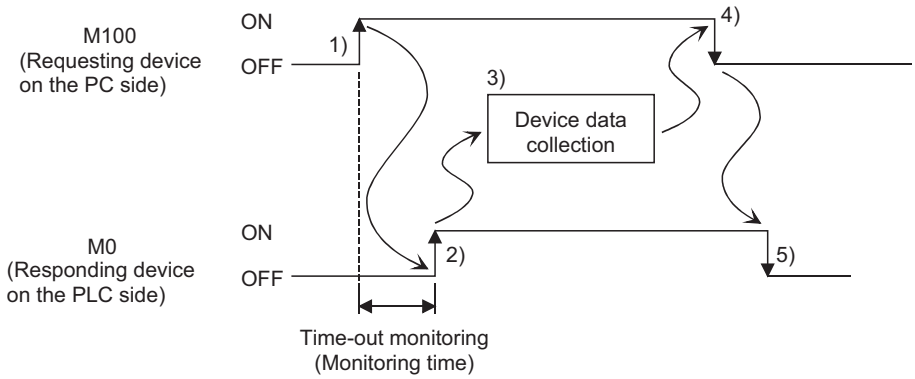


Set Handshake : Selected
Start with the request from the PC : Selected
Requesting device on the PC side
- Bit device : Selected
- Device : M100
- Value : ON

Responding device on the PLC side
- Bit device : Selected
- Device : M0
- Condition : When ON

Monitoring time : 10 seconds

<Operation timing>



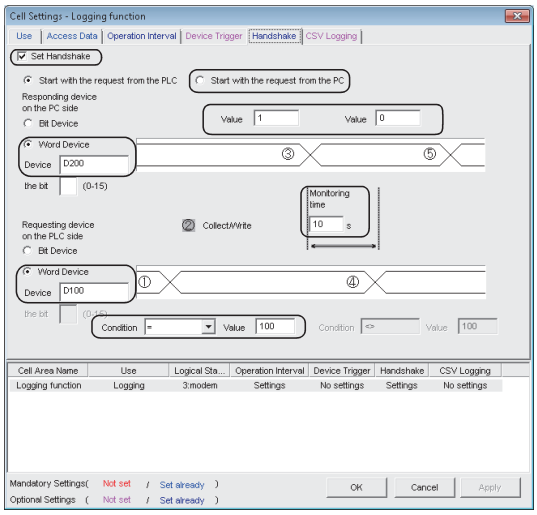
1) M100 is turned on.
2) When M0 turns on, processing in 3) is started.
3) Device data is collected.
4) After device data is collected, M100 is turned off.
5) M0 is turned off.

Remark

Time-out monitoring is not executed between 4) and 5) above.
If the operation in 5) is not performed in the programmable controller CPU, device data collection is not executed when the handshake conditions are satisfied at the next time.

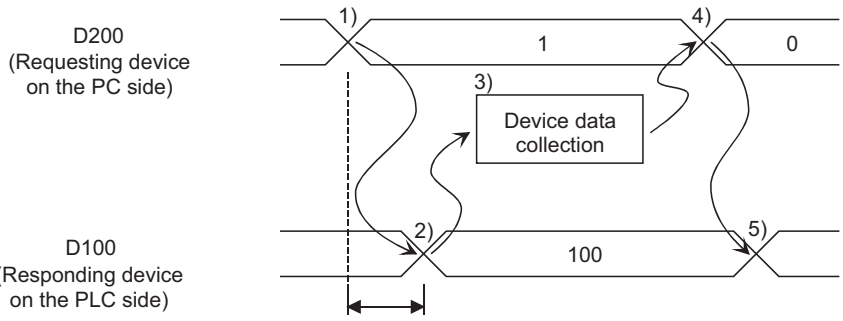
(d) When "Start with the request from the PC" is selected (Device: Word device)

<Setting example>



Set Handshake	: Selected
Start with the request from the PC	: Selected
Requesting device on the PC side	
Word device	: Selected
Device	: D200
Value	: 1 (left), 0 (right)
Responding device on the PLC side	
Word device	: Selected
Device	: D100
Condition	: =
Value	: 100
Monitoring time	: 10 seconds

<Operation timing>



1) The D200 value is changed to 1.
2) When the D100 value reaches 100, processing in 3) is started.
3) Device data is collected.
4) After device data is collected, the D200 value is changed to 0.
5) The D100 value is changed to other than 100.

Remark

Time-out monitoring is not executed between 4) and 5) above.
If the operation in 5) is not performed in the programmable controller CPU, device data collection is not executed when the handshake conditions are satisfied at the next time.

(2) "Set Handshake"

When using a handshake, be sure to select "Set Handshake".

(3) Requesting source setting

Set the requesting source for a device data collection start.

Item	Description
Start with the request from the PLC	Set when starting device data collection at the request of the programmable controller CPU.
Start with the request from the PC	Set when starting device data collection at the request of the personal computer.

(4) Handshake processing

Set the handshake processing on the personal computer side and programmable controller CPU side.

(a) PC side processing

- Device type

  Set the device type used for PC side processing.

Item	Description
Bit device	Set when a bit device is used for PC side processing.
Word device	Set when a word device or double word device is used for PC side processing.

- "Device"

  Enter the device or label used for PC side processing.
  - When entering a device, enter a device name and device number in this order.
  - When specifying a bit of the word device, enter the bit number in "the bit".
  - Bit cannot be specified for a double word device.
  - When entering a label, enter the label name.
  - The applicable data types is Bit.
  - When entering a label, enter other than structured data type label and array type label.
- "Value"

  Set the value of the device used for PC side processing.

Item	Available Device	Description
ON	Bit device	Set when the value of the device used for PC side processing is set for ON.
	Word device (Bit specification)	
OFF	Bit device	Set when the value of the device used for PC side processing is set for OFF.
	Word device (Bit specification)	
Empty (Value input)	Word device	Set the value of the word device used for PC side processing.
	Double word device	Set the value of the double word device used for PC side processing.

  Setting range:
  - Word device (-32768 to 32767)
  - Double word device (-2147483648 to 2147483647)

(b) Programmable controller CPU side processing

• Device type

Set the device type used for programmable controller CPU side processing.

Item	Description
Bit device	Set when a bit device is used for programmable controller CPU side processing.
Word device	Set when a word device or double word device is used for programmable controller CPU side processing.

• "Device"

Enter the device or label used for programmable controller CPU side processing.

- When inputting a device, input a device name and device number in this order.
- When specifying a bit of the word device, enter the bit number in "the bit".
- Bit cannot be specified for a double word device.
- When entering a label, enter the label name.
- The applicable data types is Bit.
- When entering a label, enter other than structured data type label and array type label.

• "Condition"

Set the conditions of the device used for programmable controller CPU side processing.

Item	Available Device	Description
ON	Bit device	Set when the value of the device used for programmable controller CPU side processing is set for ON.
	Word device (Bit specification)	
OFF	Bit device	Set when the value of the device used for programmable controller CPU side processing is set for OFF.
	Word device (Bit specification)	
=	Word device, Double word device	Set when the programmable controller CPU side device value is equal to the "Value" setting.

• "Value"

Set the value of the device used for programmable controller CPU side processing.

This can be set only when "=" is selected in "Condition".

Setting range:

- Word device (-32768 to 32767)
- Double word device (-2147483648 to 2147483647)

(c) Monitoring time

Set the time during which the PC side device monitors the programmable controller CPU side device.

Setting range: 1 to 3600

The monitoring time changes depending on the requesting source setting.

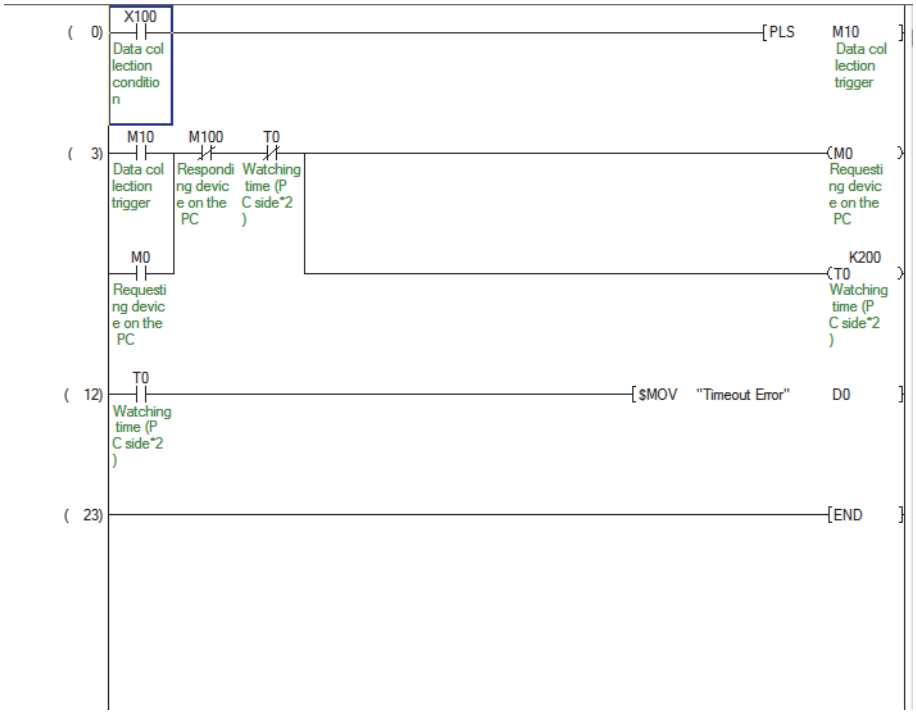
The following table shows the monitoring time.

Requesting Source Setting	Monitoring item
Start with the request from the programmable controller	Monitoring is executed from the time when the PC side responding device is set to the time when the programmable controller CPU side requesting device is reset. If the programmable controller CPU side responding device is not reset after the elapse of the monitoring time, the collected device data is discarded and the error log is displayed on the ErrorLog sheet.
Start with the request from the PC	Monitoring is executed from the time when the PC side requesting device is set to the time when the programmable controller CPU side responding device is set. If the programmable controller CPU side requesting device is not set after the elapse of the monitoring time, the error log is displayed on the ErrorLog sheet.

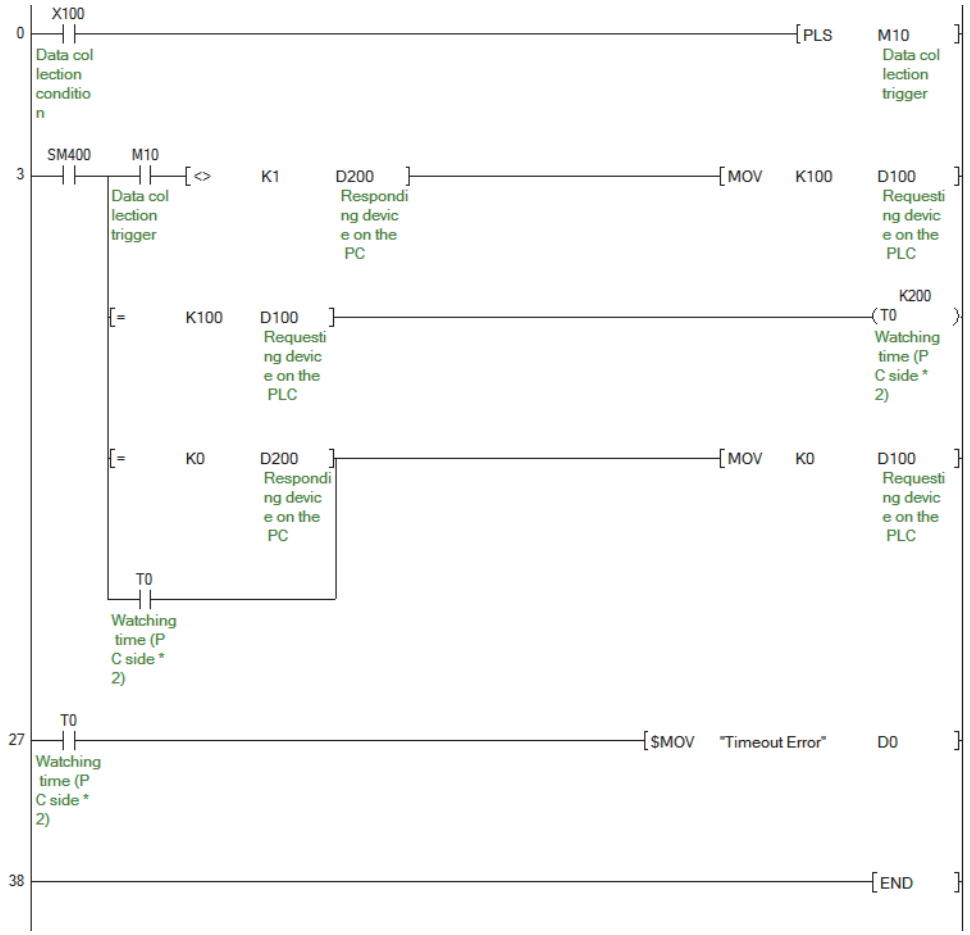
(5) Sample ladders for handshake

The following is the sample ladders for handshake used in the setting examples in (1).

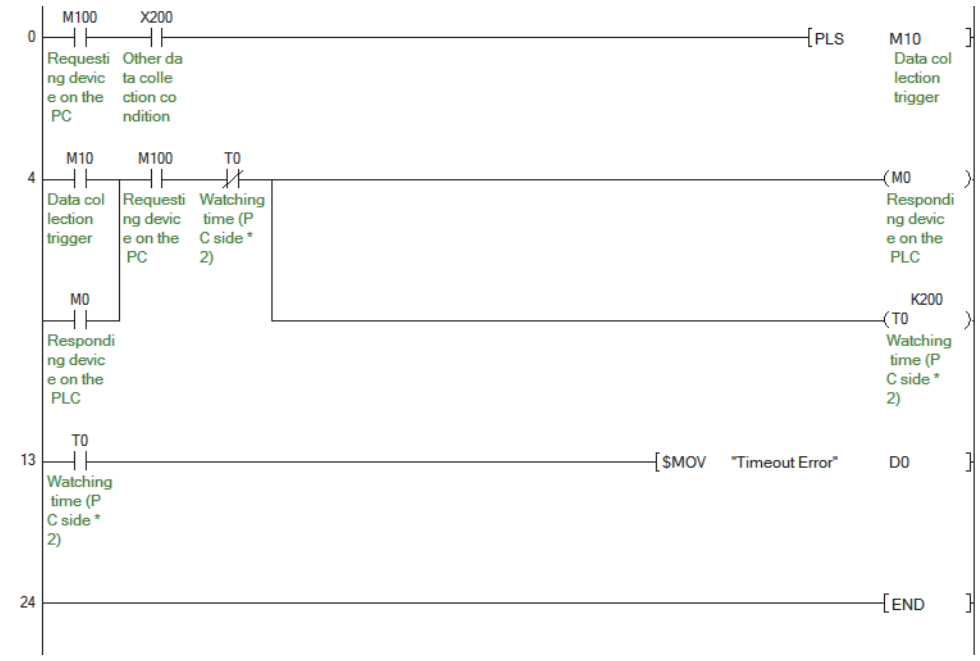
(a) When "Start with the request from the PLC" is selected (Device: Bit device)



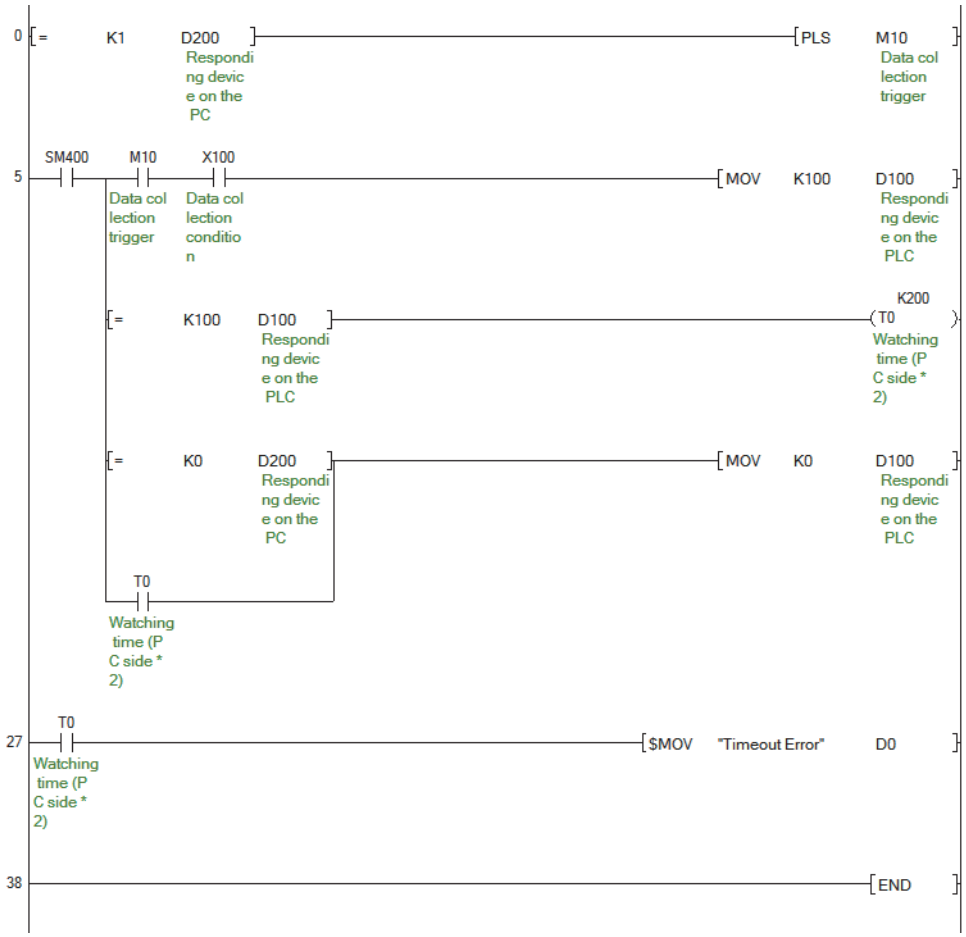
(b) When "Start with the request from the PLC" is selected (Device: Word device)



(c) When "Start with the request from the PC" is selected (Device: Bit device)



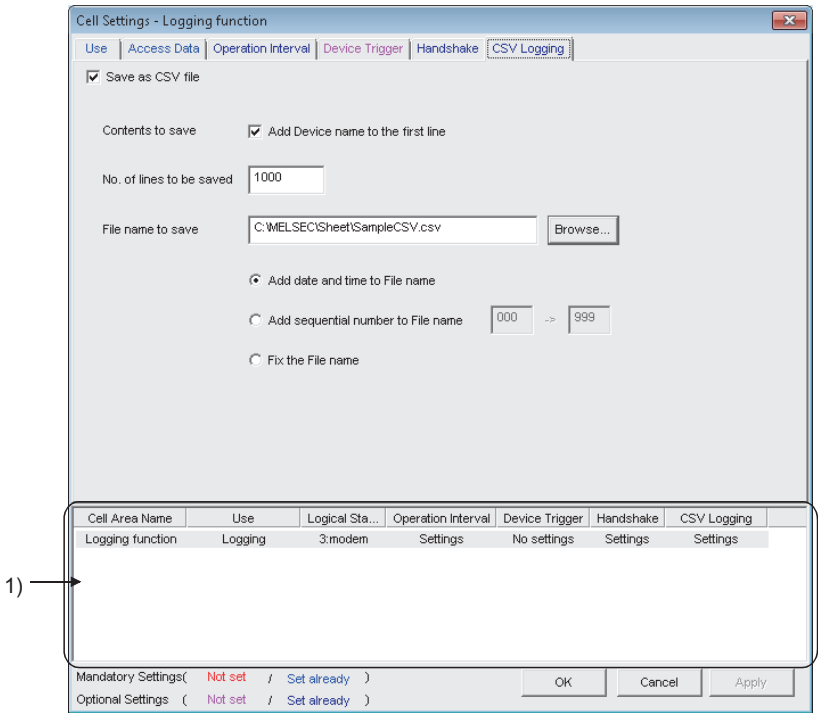
(d) When "Start with the request from the PC" is selected (Device: Word device)


0
[= K1 D200 Responding device on the PC
PLS M10 Data collection trigger
5
SM400 M10 Data collection trigger X100 Data collection condition
MOV K100 D100 Responding device on the PLC
[= K100 D100 Responding device on the PLC
K200 T0 Watching time (PC side * 2)
[= K0 D200 Responding device on the PC
MOV K0 D100 Responding device on the PLC
T0 Watching time (PC side * 2)
27
T0 Watching time (PC side * 2)
$MOV "Timeout Error" D0
38
END

6.2.6 Setting of the <<CSV Logging>> tab

This section explains the setting of the <<CSV Logging>> tab for use of the logging function.
On the <<CSV Logging>> tab, the file name and the saving content with which logging data is saved to CSV file.

Screen display



Display contents

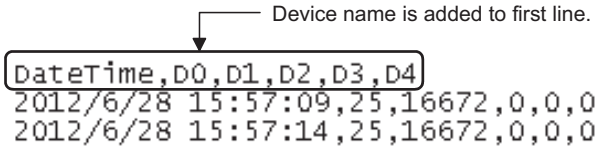
Item	Description	Reference
Save as CSV file	Set when using the CSV logging.	Page 68, (1) in this section
Contents to save	Set when adding the device name to the first line.	Page 68, (2) in this section
No. of lines to be saved	Set the number of lines to be saved.	Page 68, (3) in this section
File name to save	Set the file name to save.	Page 69, (4) in this section
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

(1) "Save as CSV file"

When using the CSV logging, be sure to select "Save as CSV file".

(2) "Contents to save"

Activate this setting when adding the device name to the first line of the data to be saved into a CSV file.



If 0.001 to 0.999 seconds are set to the "Regular interval" on the <<Operation Interval>> tab, the date and time to be written to the CSV file is in the "yyyy/mm/dd hh:mm:ss" format.

<Example>

When 0.2 seconds interval is set

```
DateTime,D0,D1,D2
2012/6/28 10:00:19,37,0,100
2012/6/28 10:00:20,45,0,94
2012/6/28 10:00:20,56,0,83
2012/6/28 10:00:20,67,0,78
2012/6/28 10:00:20,78,0,62
2012/6/28 10:00:20,89,0,55
2012/6/28 10:00:21,101,0,43
```

(3) "No. of lines to be saved"

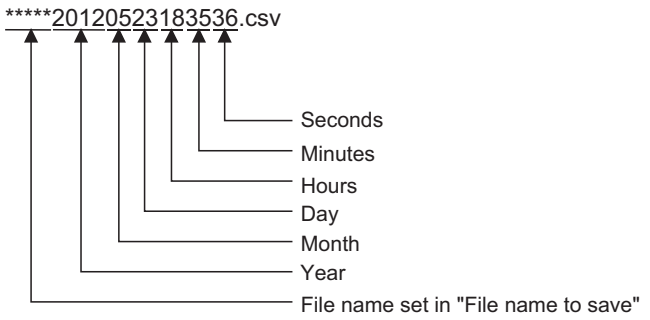
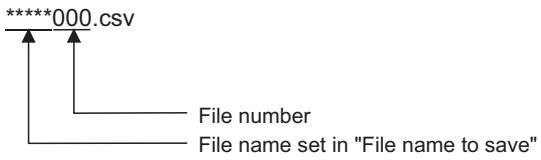
Set the number of lines to be saved into a single CSV file.

Setting range: 1 to 9999999 *1

*1 : Set any of 1 to 65535 when using the CSV file on Excel.

(4) "File name to save"

Set the CSV file name to save.

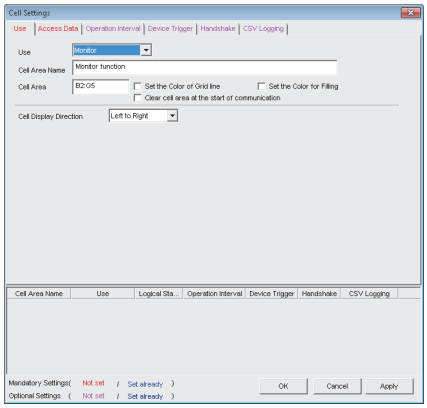
Item	Description
File name to save	Sets the saving location and file name of the CSV file. *1
Add date and time to File name	Adds the date and time data to the file name set in "File name to save" and saves it. In CSV logging, data is added until the data in the CSV file reach the number of lines set in "No. of lines to be saved". When they reach the set number of lines, a new CSV file is created. The following shows the file name when data are saved. 
Add sequential number to File name	Adds the file number to the file name set in "File name to save" and saves it. The serial number can be set in a range from 000 to 999. When the number reaches the last, the data of the next file are overwritten to the file of the first number. In CSV logging, data is added until the data in the CSV file reach the number of lines set in "No. of lines to be saved". When they reach the set number of lines, a new CSV file is created. 
Fix the File name	Overwrites data to the CSV file set in "File name to save". In CSV logging, data is added until the data in the CSV file reach the number of lines set in "No. of lines to be saved".

*1 : A UNC path name (\\server name\path name) cannot be specified as a file name. After assigning the network drive, specify the path name.

6.3 When "Monitor" is Selected

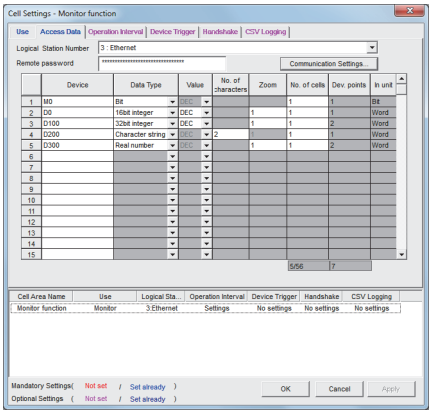
This section explains the Cell Settings screen when "Monitor" is selected from "Use" on the <<Use>> tab.

<<Use>> tab



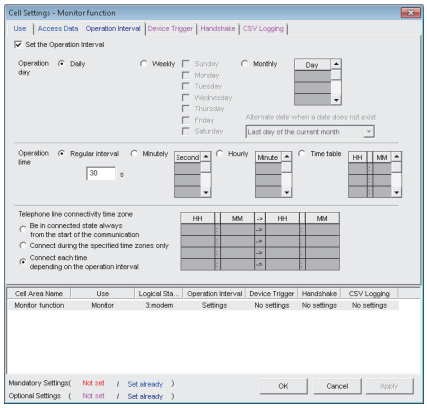
Required setting
☞ Page 71, Section 6.3.1

<<Access Data>> tab



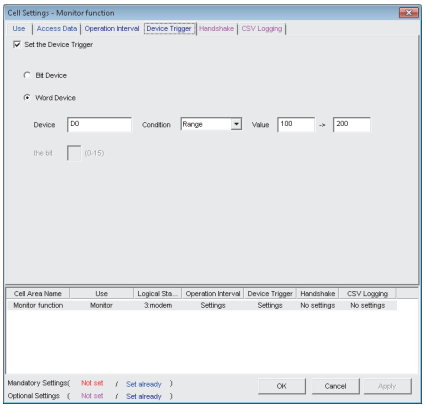
Required setting
☞ Page 74, Section 6.3.2

<<Operation Interval>> tab



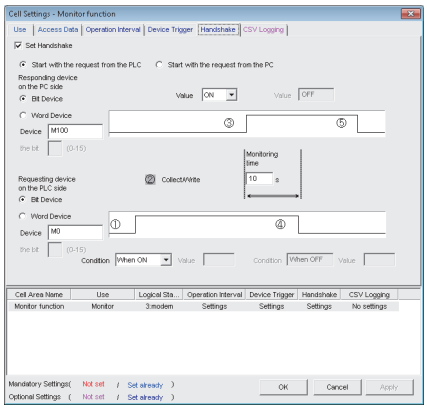
Required setting
☞ Page 75, Section 6.3.3

<<Device Trigger>> tab



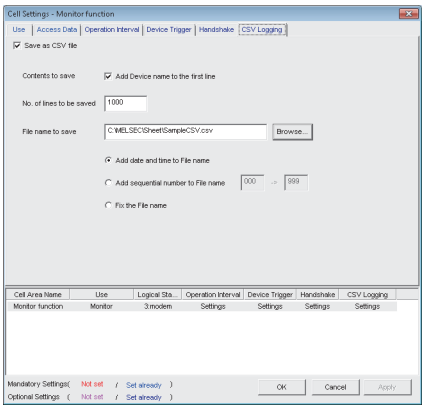
Set as necessary
☞ Page 77, Section 6.3.4

<<Handshake>> tab



Set as necessary
☞ Page 78, Section 6.3.5

<<CSV Logging>> tab

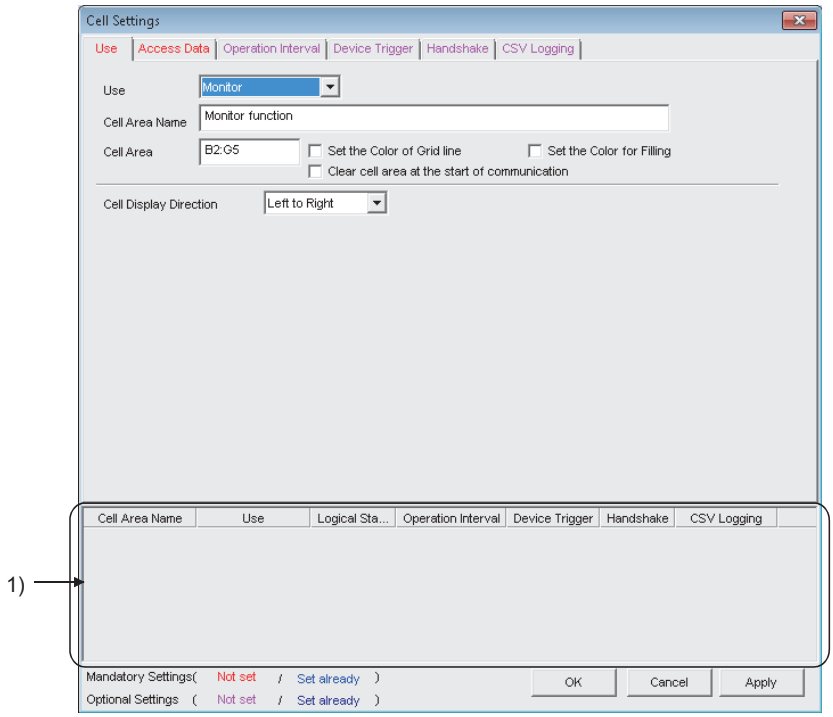


Set as necessary
☞ Page 79, Section 6.3.6

6.3.1 Setting of the <<Use>> tab

This section explains the setting of the <<Use>> tab for use of the monitor function.
On the <<Use>> tab, set the cell area and monitor data display direction.

Screen display



Display contents

Item	Description	Reference
Use	Set the function to be used for the specified cell area. Select "Monitor" when using the monitor function.	-
Cell Area Name	Set the name of the specified cell area. (Maximum number of cell area names : 1000)	
Cell Area	Enter the value to specify the cell area.	Page 72, (1) in this section
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	Page 34, Section 6.2.1
Set the Color for Filling	Set whether the specified cell area is colored or not.	
Clear cell area at the start of communication	When "Clear cell area at the start of communication" is selected, the data in the cell area specified at the start of communication is cleared. (Default: cleared)	Page 72, (2) in this section
Cell Display Direction	Set the monitor data display sequence. • Left to Right Monitor data are displayed from left to right in the specified cell area in order. • Top to Bottom Monitor data are displayed from top to bottom in the specified cell area in order.	Page 73, (3) in this section
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

(1) "Cell Area"

Set the cell area to be used by the monitor function.

(a) Setting examples

For the "Cell Area" setting examples, refer to the following section.

☞ Page 34, Section 6.2.1

(b) Setting ranges

The following explains the possible setting ranges of the cell area and number of specified cell areas.

Number of cells : 2000

Number of specified cell areas : 16

(2) "Clear cell area at the start of communication"

Set whether the cell area is cleared or not at the start of communication.

(a) Display example in the case where "Clear cell area at the start of communication" is selected

<Before the start of communication>

1005	35	102	10
1002	30	200	15
990	36	151	25

↓

<At the start of communication>

↓

<At the completion of the first collection>

910	33	111	15
880	34	180	22
925	31	135	18

(b) Display example in the case where "Clear cell area at the start of communication" is not selected

<Before the start of communication>

1005	35	102	10
1002	30	200	15
990	36	151	25

↓

<At the start of communication>

1005	35	102	10
1002	30	200	15
990	36	151	25

↓

<At the completion of the first collection>

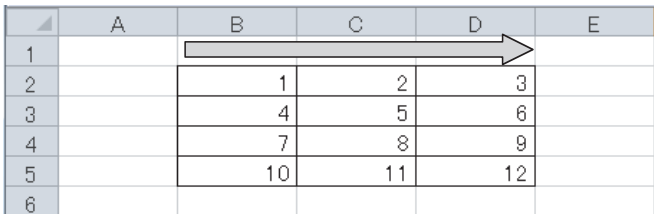
910	33	111	15
880	34	180	22
925	31	135	18

(3) "Cell Display Direction"

Set the monitor data display sequence.

(a) When "Left to Right" is selected

<When cell area (B2:D5) is set to "Left to Right">

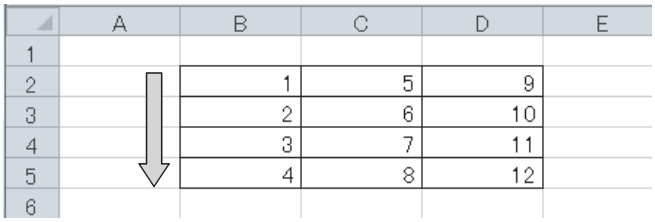


	A	B	C	D	E
1		→			
2		1	2	3	
3		4	5	6	
4		7	8	9	
5		10	11	12	
6					

Monitor data are displayed in order of 1 to 12.

(b) When "Top to Bottom" is selected

<When cell area (B2:D5) is set to "Top to Bottom ">



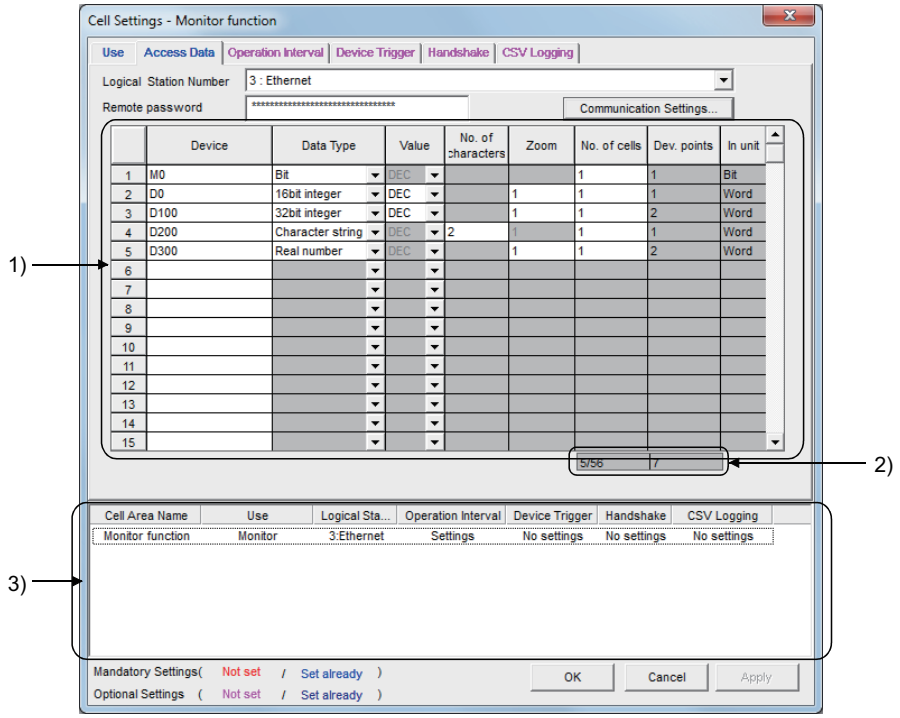
	A	B	C	D	E
1					
2	↓	1	5	9	
3		2	6	10	
4		3	7	11	
5		4	8	12	
6					

Monitor data are displayed in order of 1 to 12.

6.3.2 Setting of the <<Access Data>> tab

This section explains the setting of the <<Access Data>> tab for use of the monitor function.
On the <<Access Data>> tab, set the logical station number required for communication with the programmable controller CPU and the device data to be collected in the cell area.

Screen display



Display contents

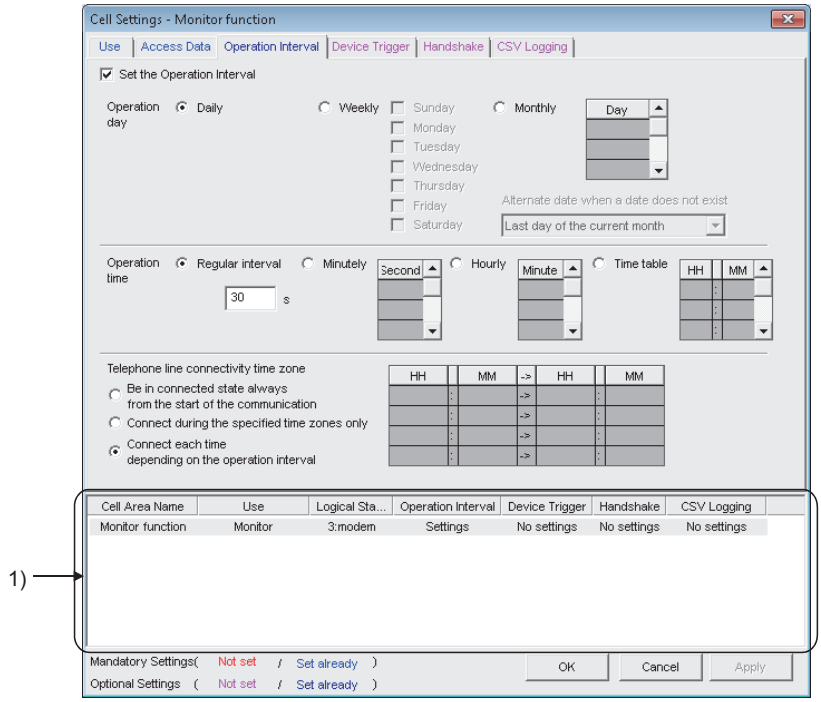
Item	Description	Reference
Logical Station Number	Select the logical station number required for performing communication.	Page 41, Section 6.2.2
Communication Settings... button	Used to start the communication setup utility to set a new logical station number and change the settings.	
Remote password *1	Enter the password when the password is set to the connection target programmable controller CPU.	
1) (Access data)	Set the devices or labels to be monitored.	
2) (Number of set devices)	The number of devices currently set is displayed.	
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

*1 : "Remote password" is displayed when the logical station number selected in "Logical Station Number" of the <<Access Data>> tab is the one for the password function compatible module.

6.3.3 Setting of the <<Operation Interval>> tab

This section explains the setting of the <<Operation Interval>> tab for use of the monitor function.
On the <<Operation Interval>> tab, set the day, time and time zone of the activation of the function for the cell area.

Screen display



Display contents

Item	Description	Reference
Set the Operation Interval	Set the operation of the cell area valid or invalid.	Page 47, Section 6.2.3
Operation day	Set the operation day of the monitor function activation.	
Operation time	Set the operation time of the monitor function activation.	Page 76, (1) in this section
Telephone line connectivity time zone *1	Set the telephone line connection timing and disconnection timing.	Page 47, Section 6.2.3
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

*1 : "Telephone line connectivity time zone" is displayed when the logical station number selected in "Logical Station Number" on the <<Access Data>> tab is the one for modem communication.

(1) "Operation time"

The setting except for "Regular interval" is the same as that of the logging function.

For the setting except for "Regular interval", refer to the following section.

☞ Page 47, Section 6.2.3

(a) When "Regular interval" is selected

Device data is collected at the set second intervals.

When modem communication is used and "Telephone line connectivity time zone" is set to "Connect each time depending on the operation interval", set "Regular interval" to 30 seconds or more.

When set for lesser "seconds" than the actual communication time, the fixed interval communication cannot be established. Hence, set for longer than the actual communication time.

For Communication time, refer to the following performance value.

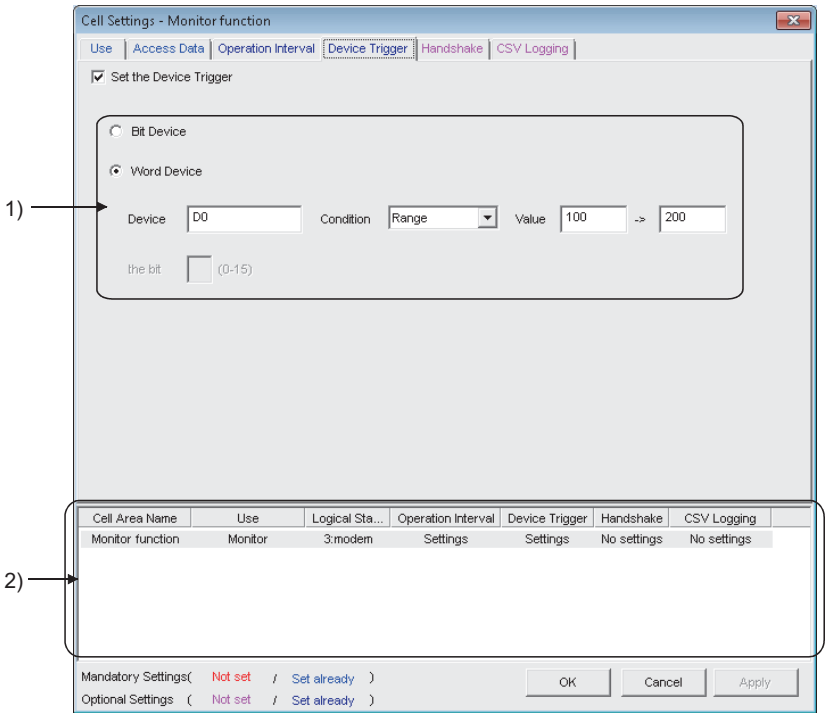
☞ Page 152, Processing Speed of MX Sheet

Setting range: 0.001 to 0.999 (in units of 0.001 seconds), 1 to 3600 (in units of 1 second)

6.3.4 Setting of the <<Device Trigger>> tab

This section explains the setting of the <<Device Trigger>> tab for use of the monitor function.
On the <<Device Trigger>> tab, set the device conditions for the device trigger.

Screen display



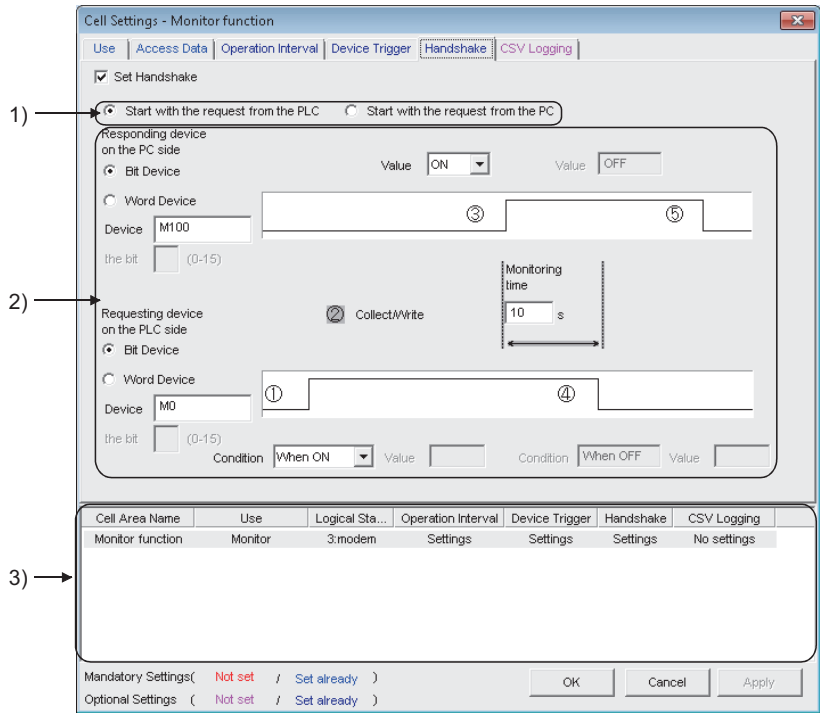
Display contents

Item	Description	Reference
Set the Device Trigger	Set when the device trigger is used.	Page 54, Section 6.2.4
1) (Device conditions)	Set the device or label conditions.	
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

6.3.5 Setting of the <<Handshake>> tab

This section explains the setting of the <<Handshake>> tab for use of the monitor function.
On the <<Handshake>> tab, set the handshake requesting source and handshake processing.

Screen display



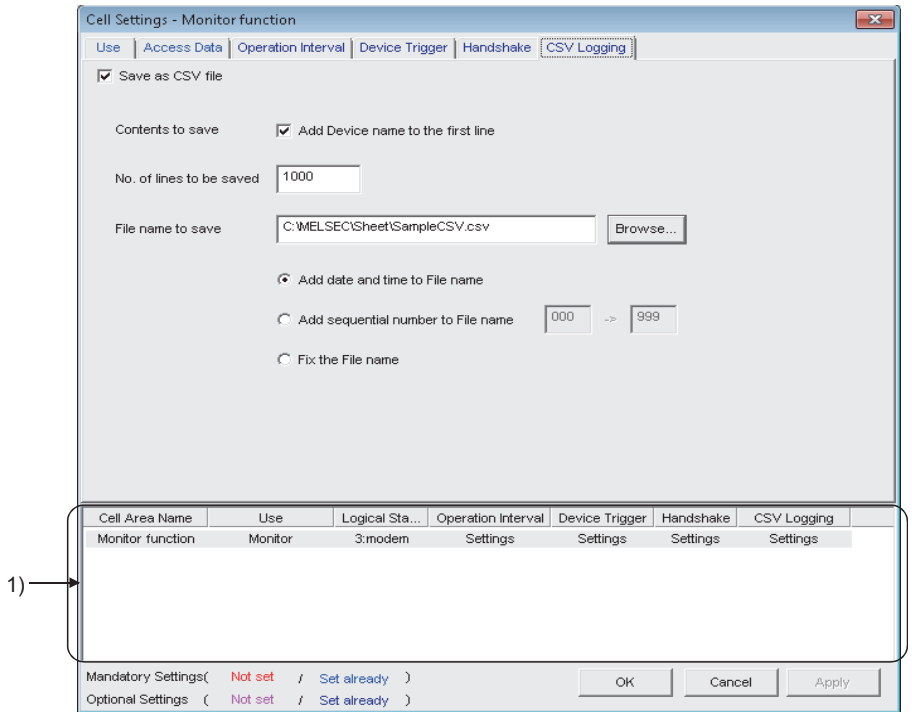
Display contents

Item	Description	Reference
Set Handshake	Set when using a handshake.	Page 57, Section 6.2.5
1) (Requesting source setting)	Set the requesting source of the handshake.	
2) (Handshake processing)	Set the handshake processing.	
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

6.3.6 Setting of the <<CSV Logging>> tab

This section explains the setting of the <<CSV Logging>> tab for use of the monitor function.
On the <<CSV Logging>> tab, set the file name and the saving content with which the monitor data is saved into the CSV file.

Screen display



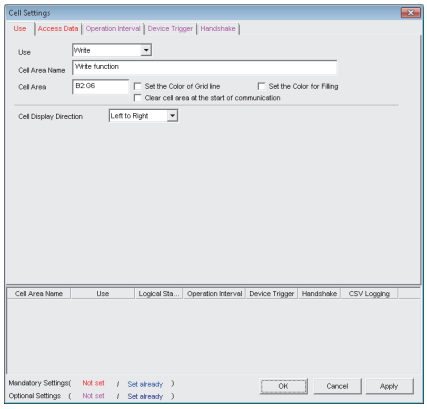
Display contents

Item	Description	Reference
Save as CSV file	Set when using the CSV logging.	Page 67, Section 6.2.6
Contents to save	Set when adding the device name to the first line.	
No. of lines to be saved	Set the number of lines to be saved.	
File name to save	Set the file name to save.	
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

6.4 When "Write" is Selected

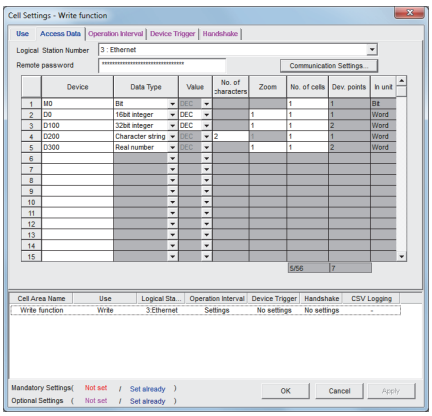
This section explains the Cell Settings screen when "Write" is selected from "Use" on the <<Use>> tab.

<<Use>> tab



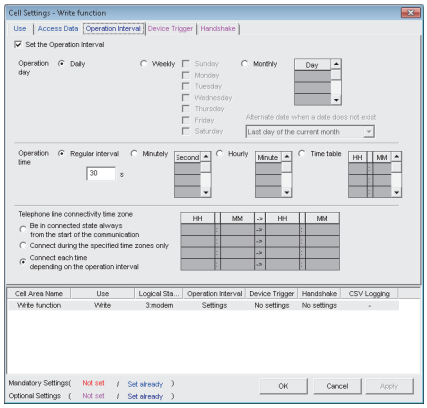
Required setting
☞ Page 81, Section 6.4.1

<<Access Data>> tab



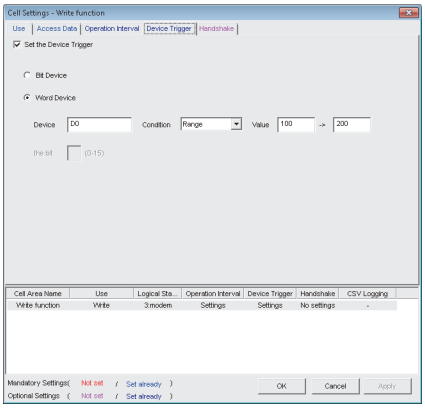
Required setting
☞ Page 83, Section 6.4.2

<<Operation Interval>> tab



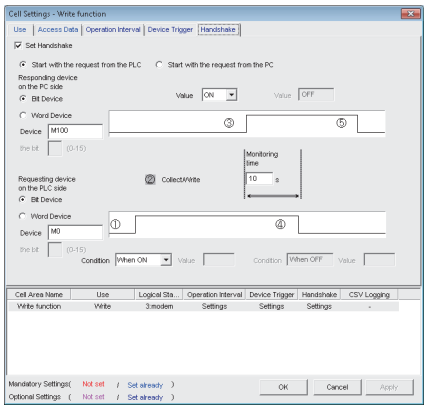
Required setting
☞ Page 85, Section 6.4.3

<<Device Trigger>> tab



Set as necessary
☞ Page 87, Section 6.4.4

<<Handshake>> tab

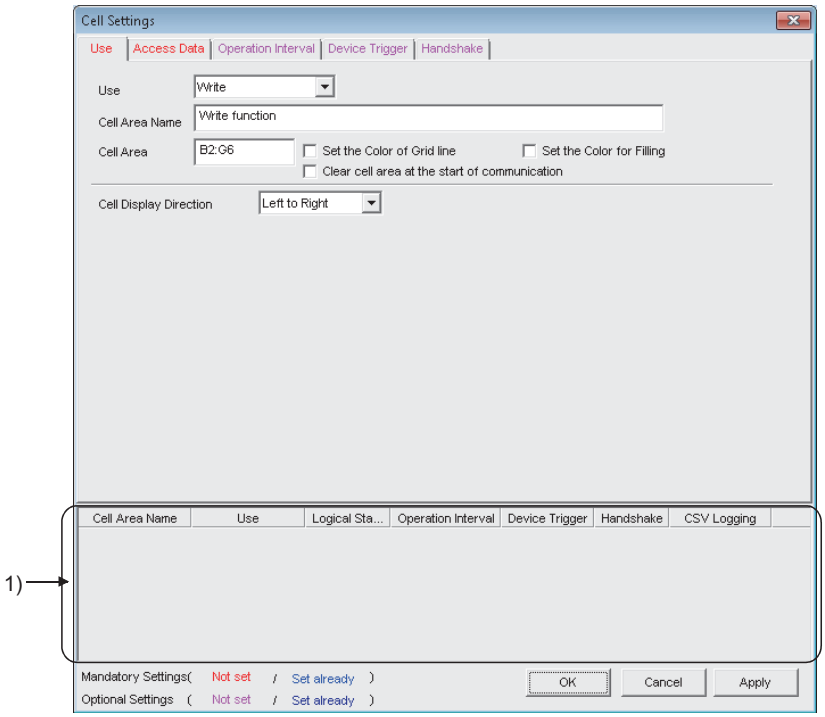


Set as necessary
☞ Page 88, Section 6.4.5

6.4.1 Setting of the <<Use>> tab

This section explains the setting of the <<Use>> tab for use of the write function.
On the <<Use>> tab, set the cell area and display direction of written data.

Screen display



Display contents

Item	Description	Reference
Use	Set the function to be used for the specified cell area. Choose "Write" when using the write function.	-
Cell Area Name	Set the name of the specified cell area. (Maximum number of cell area names : 1000)	
Cell Area	Enter the value to specify the cell area.	Page 82, (1) in this section
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	Page 34, Section 6.2.1
Set the Color for Filling	Set whether the specified cell area is colored or not	
Clear cell area at the start of communication	When "Clear cell area at the start of communication" is selected, the data in the cell area specified at the start of communication is cleared. (Default: cleared)	Page 71, Section 6.3.1
Cell Display Direction	Set the input cells for the write data. • Left to Right Write data are set from left to right in the specified cell area in order. • Top to Bottom Write data are set from top to bottom in the specified cell area in order.	Page 82, (2) in this section
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 71, Section 6.3.1

(1) "Cell Area"

Set the cell area to be used by the write function.

(a) Setting examples

For the "Cell Area" setting examples, refer to the following section.

☞ Page 34, Section 6.2.1

(b) Setting ranges

The following explains the possible setting ranges of the cell area and number of specified cell areas.

Number of cells : 2000

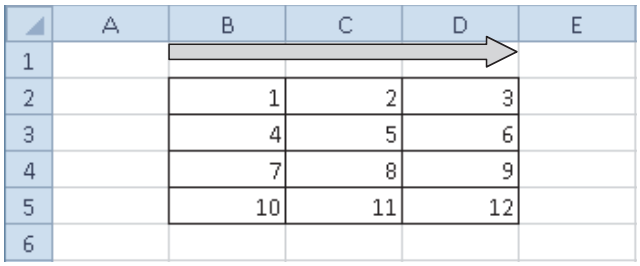
Number of specified cell areas : 16

(2) "Cell Display Direction"

Set the written data cell sequence

(a) When "Left to Right" is selected

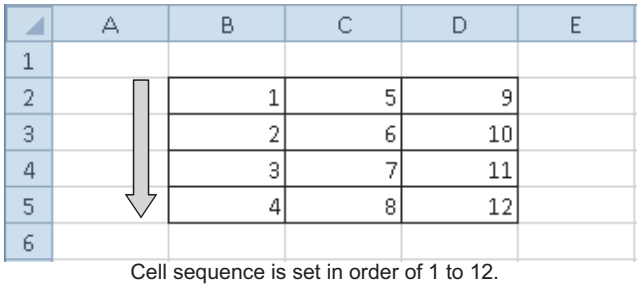
<When cell area (B2:D5) is set to "Left to Right">



Cell sequence is set in order of 1 to 12.

(b) When "Top to Bottom" is selected

<When cell area (B2:D5) is set to "Top to Bottom ">

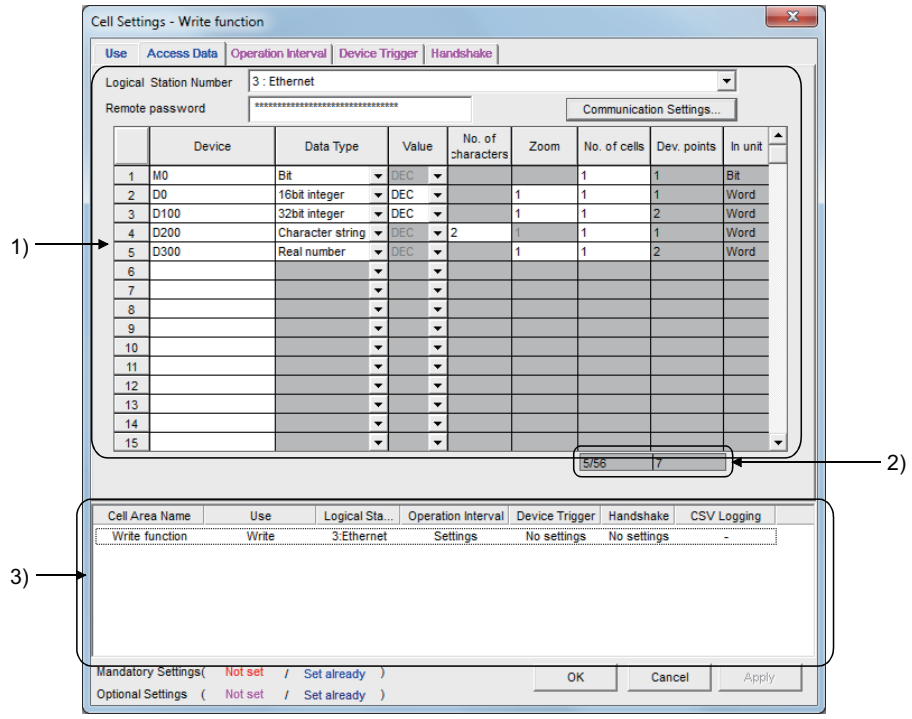


Cell sequence is set in order of 1 to 12.

6.4.2 Setting of the <<Access Data>> tab

This section explains the setting of the <<Access Data>> tab for use of the write function.
On the <<Access Data>> tab, set the logical station number required for communication with the programmable controller CPU and the device data to be written from the cell area.

Screen display



Display contents

Item	Description	Reference
Logical Station Number	Select the logical station number required for performing communication.	Page 41, Section 6.2.2
Communication Settings... button	Used to start the communication setup utility to set a new logical station number and change the settings.	
Remote password*1	Enter the password when the password is set to the connection target programmable controller CPU.	
1) (Access data)	Set the devices or labels to be written.	Page 84, (1) in this section
2) (Number of set devices)	The number of devices currently set is displayed.	Page 41, Section 6.2.2
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

*1 : "Remote password" is displayed when the logical station number selected in "Logical Station Number" on the <<Access Data>> tab is the one for the password function compatible module.

(1) "Access data"

The setting except for "Zoom" is the same as that of the logging function.

For the setting except for "Zoom", refer to the following section.

☞ Page 41, Section 6.2.2

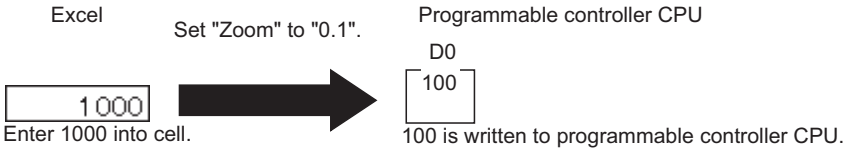
(a) "Zoom"

The value entered into the cell is multiplied by the zoom ratio and written to the programmable controller CPU device.

When "Data Type" is set to "Bit" or "Character string", the "Zoom" setting is not possible.

When the "Value" is set to "HEX", the "Zoom" setting is not possible.

Setting range: 0.001 to 1000



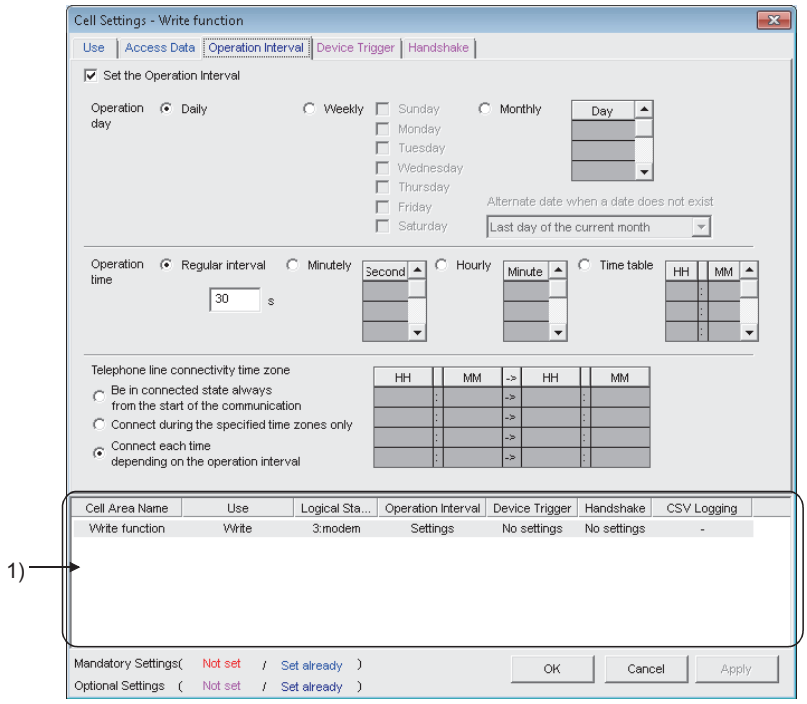
Point

When "Zoom" is set for the write data and fractional decimals occurs in the data to be actually written to the programmable controller CPU, set "Real number" in "Data type".

6.4.3 Setting of the <<Operation Interval>> tab

This section explains the setting of the <<Operation Interval>> tab for use of the write function.
On the <<Operation Interval>> tab, set the day, time and time zone of the activation of the function for the cell area is activated.

Screen display



Display contents

Item	Description	Reference
Set the Operation Interval	Set the operation of the cell area valid or invalid.	Page 47, Section 6.2.3
Operation day	Set the operation of the cell area valid or invalid.	
Operation time	Set the operation time of the write function activation.	Page 86, (1) in this section
Telephone line connectivity time zone*1	Set the telephone line connection timing and disconnection timing.	Page 47, Section 6.2.3
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

*1 : "Telephone line connectivity time zone" is displayed when the logical station number selected in "Logical Station Number" on the <<Access Data>> tab is the one for modem communication.

(1) "Operation time"

The setting except for "Regular interval" is the same as the that of the logging function.
For the setting except for "Regular interval", refer to the following section.
☞ Page 47, Section 6.2.3

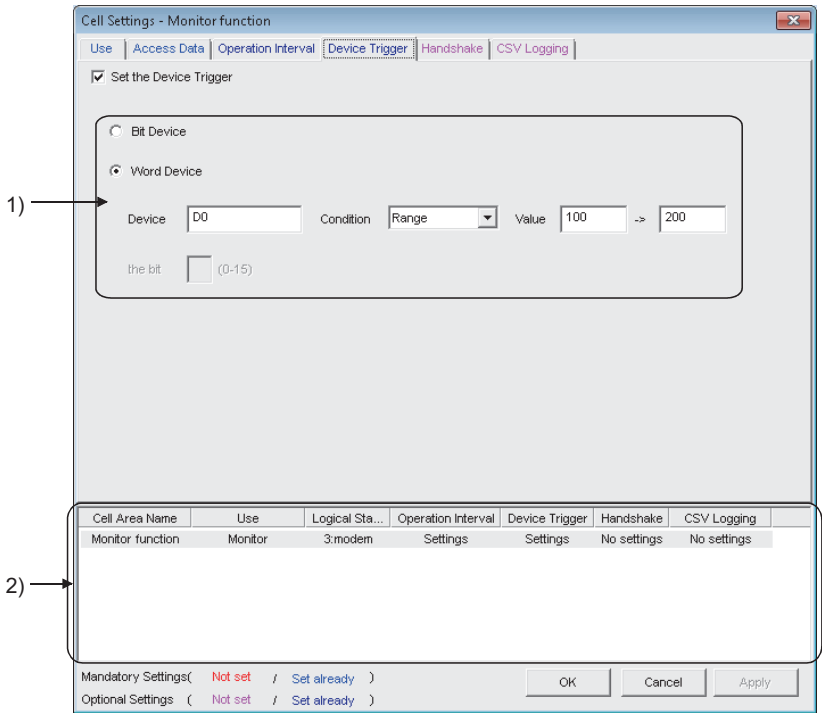
(a) When "Regular interval" is selected

Device data is written at the set second intervals.
When modem communication is used and "Telephone line connectivity time zone" is set to "Connect each time depending on the operation interval", set "Regular interval" to 30 seconds or more.
When set for lesser "seconds" than the actual communication time, the fixed interval communication cannot be established. Hence, set for longer than the actual communication time.
For Communication time, refer to the following performance value.
☞ Page 152, Processing Speed of MX Sheet
Setting range: 0.001 to 0.999 (in units of 0.001 seconds), 1 to 3600 (in units of 1 second)

6.4.4 Setting of the <<Device Trigger>> tab

This section explains the setting of the <<Device Trigger>> tab for use of the write function.
On the <<Device Trigger>> tab, set the device conditions for the device trigger.

Screen display



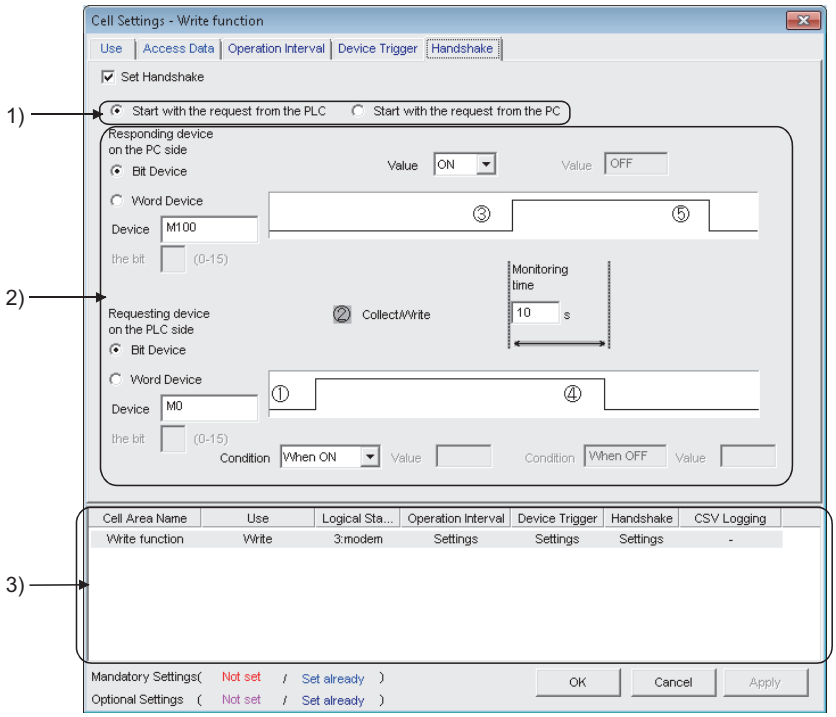
Display contents

Item	Description	Reference
Set the Device Trigger	Set when the device trigger is used.	Page 54, Section 6.2.4
1) (Device conditions)	Set the device or label conditions.	
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

6.4.5 Setting of the <<Handshake>> tab

This section explains the setting of the <<Handshake>> tab for use of the write function.
On the <<Handshake>> tab, set the handshake requesting source and handshake processing.

Screen display



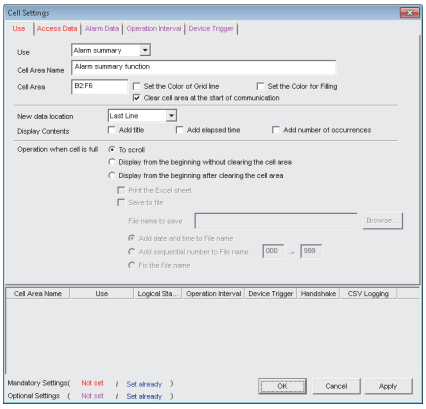
Display contents

Item	Description	Reference
Set Handshake	Set when using a handshake.	Page 57, Section 6.2.5
1) (Requesting source setting)	Set the requesting source of the handshake.	
2) (Handshake processing)	Set the handshake processing.	
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

6.5 When "Alarm Summary" is Selected

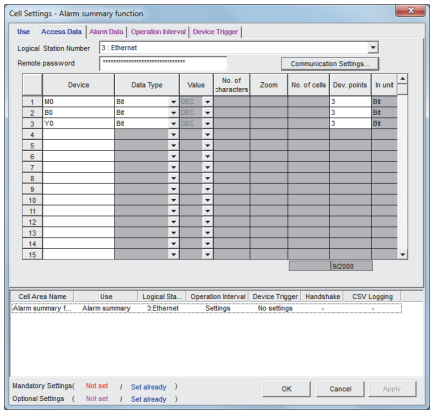
This section explains the Cell Settings screen when "Alarm summary" is selected from "Use" on the <<Use>> tab.

<<Use>> tab



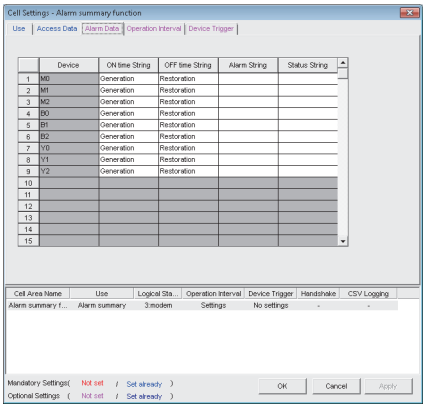
Required setting
☞ Page 90, Section 6.5.1

<<Access Data>> tab



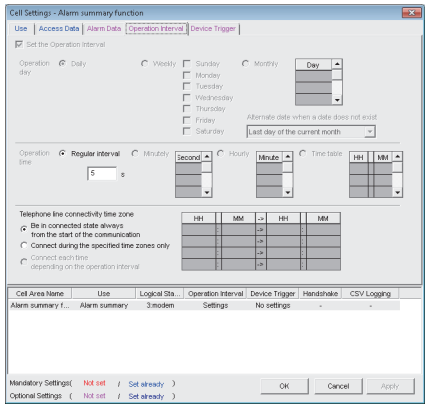
Required setting
☞ Page 93, Section 6.5.2

<<Alarm Data>> tab



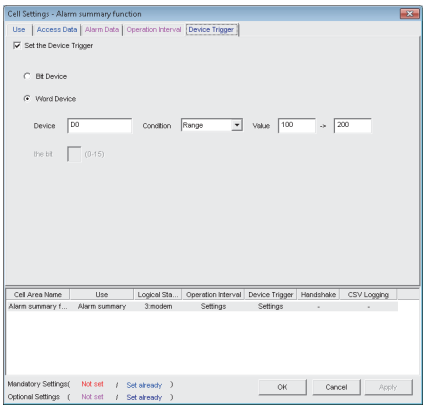
Required setting
☞ Page 95, Section 6.5.3

<<Operation Interval>> tab



Set as necessary
☞ Page 97, Section 6.5.4

<<Device Trigger>> tab

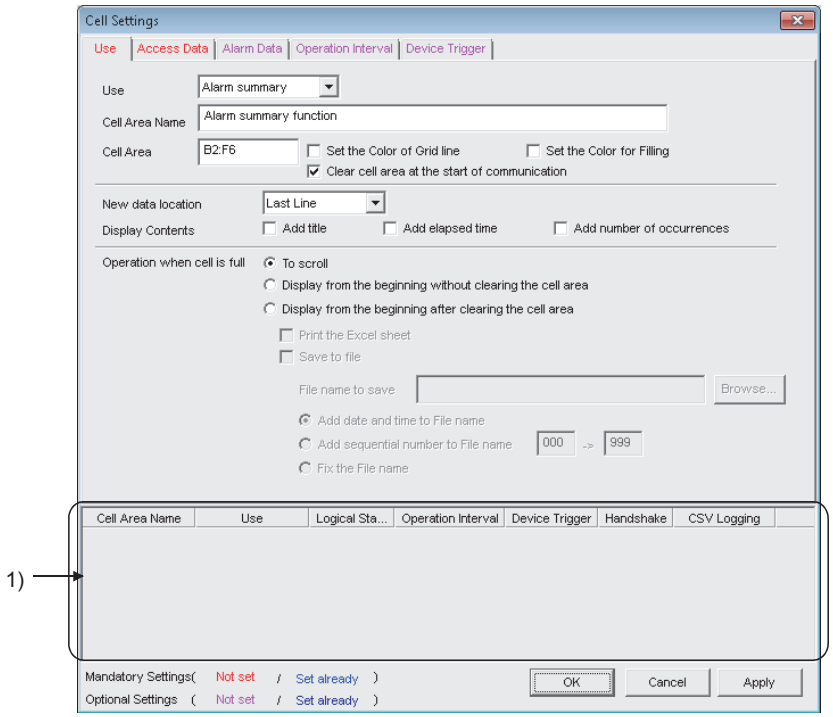


Set as necessary
☞ Page 98, Section 6.5.5

6.5.1 Setting of the <<Use>> tab

This section explains the setting of the <<Use>> tab for use of the alarm summary function.
On the <<Use>> tab, set the cell area, display position of alarm data and operation in the case where cell is full.

Screen display



Display contents

Item	Description	Reference
Use	Set the function to be used for the specified cell area. Select "Alarm summary" when using the alarm summary function.	-
Cell Area Name	Set the name of the specified cell area. (Maximum number of cell area names : 100)	
Cell Area	Enter the value to specify the cell area.	Page 91, (1) in this section
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	Page 34, Section 6.2.1
Set the Color for Filling	Set whether the specified cell area is colored or not.	
Clear cell area at the start of communication	When "Clear cell area at the start of communication" is checked, the data in the cell area specified at the start of communication is cleared. (Default: selected)	
New data location	Set the latest data display position of the alarm summary. • Last Line The latest data is displayed at the last of the specified cell area. • First Line The latest data is displayed at the first of the specified cell area.	
Display Contents	Set whether the title, elapsed time, and number of occurrences is added to the Alarm Summary or not.	Page 91, (2) in this section

Item	Description	Reference
Operating when cell is full	Set the operation to be performed when the specified cell area is full. • To scroll The displayed content is scrolled and displayed. • Display from the first without clearing the cell area The data currently displayed in the cell area are overwritten and the alarm summary is resumed. Before the alarm summary is resumed, the Excel spreadsheet can be printed and saved. • Display from the first after clearing the cell area The data displayed in the cell area are erased and the alarm summary is resumed. Before the alarm summary is resumed, the Excel spreadsheet can be printed and saved.	Page 34, Section 6.2.1
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

(1) "Cell Area"

Set the cell area to be used by the alarm summary function.

(a) Setting examples

For the "Cell Area" setting examples, refer to the following section.

☞ Page 34, Section 6.2.1

(b) Setting examples

The following shows the possible setting ranges of the cell area and number of specified cell areas.

Number of cells : 4 columns (indispensable) ×65536 rows*1

Number of specified cell areas : 16

*1 : When displaying the elapsed time and number of occurrences in the Alarm Summary, increase the number of columns by 1 respectively.
6 columns are required to display both.

(2) "Display Contents"

(a) "Add title" check box

Set whether the title for the column item shown in the following table is displayed or not on the first line of the set "Cell Area". When displaying the title, select the check box.

Column item	Title
• On time String/Off time String (☞ Page 95, Section 6.5.3) The On time String is displayed when the device turns from OFF to ON, or the Off time String is displayed when the device turns from ON to OFF.	ON/OFF
Date and time when the device turns from OFF to ON or from ON to OFF	Date time
Alarm String set to the device (☞ Page 95, Section 6.5.3)	Alarm
Status String set to the device (☞ Page 95, Section 6.5.3)	Status
Elapsed time from when the device turns ON until it turns OFF (☞ Page 92, (2)(b) in this section)	Elapsed time
Number of times when the device turned from OFF to ON after the start of communication. (☞ Page 92, (2)(c) in this section)	Number of occurrences

Point

- The title display line is not the target of cell area clear at the start of communication or clear when cell is full.
- When the Cell Area is set at multiple locations, the title is displayed for only the Cell Area specified first.

(b) "Add elapsed time" check box

Set whether the elapsed time from when the device set on the <<Access Data>> tab turns ON until it turns OFF is displayed on the Alarm Summary or not.

When displaying the elapsed time, select the check box.

The display format is "hour:minute:second".

<Example>

Display when the elapsed time is 1 minute 25 seconds 0:01:25

Point

When the device is ON at the start of communication, the time from when communication starts until the device turns OFF is displayed as the elapsed time.

(c) "Add number of occurrences" check box

Set whether the number of times when the device set on the <<Access Data>> tab turns from OFF to ON after the start of communication is displayed on the Alarm Summary or not.

When displaying the number of occurrences, select the check box.

In this case, the "Clear cell area at the start of communication" check box must be selected.

Point

- When the device is ON at the start of communication, it is counted as the first alarm.
- When the number of occurrences exceeds 65535, it returns to 0.

<Example>

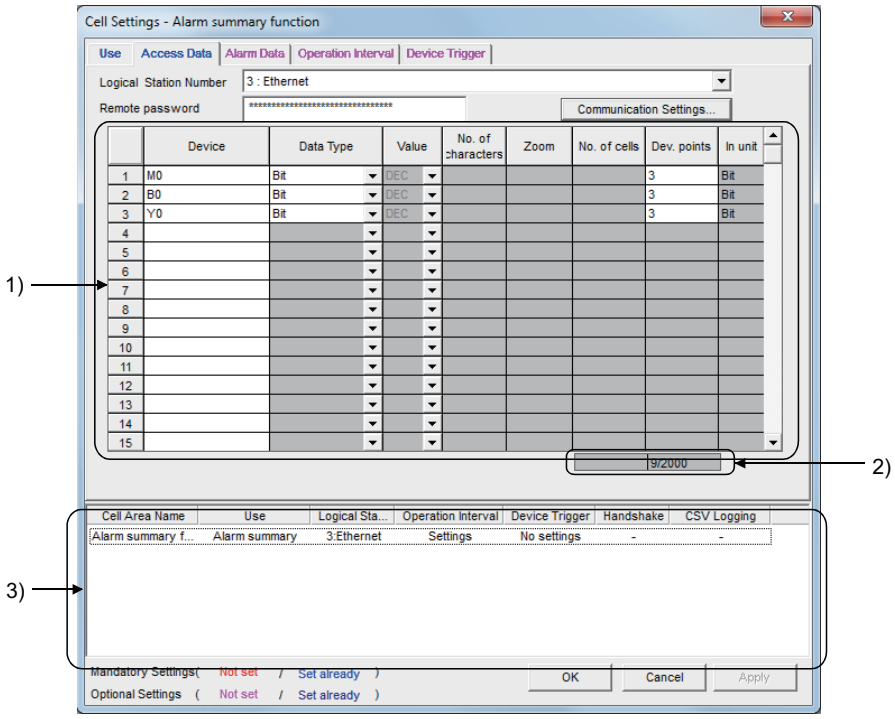
Display content on the Excel spreadsheet when "Add title", "Add elapsed time", and "Add number of occurrences" are all selected

ON/OFF	Date time	Alarm	Status	Elapsed time	Number of occurrences
Generation	2012/06/25 Mon 15:05:20	Parts1 Abnormal fault	Major failure		1
Generation	2012/06/25 Mon 15:05:31	Parts 2 Quantity error	Minor failure		1
Restoration	2012/06/25 Mon 15:06:48	Parts1 Abnormal fault	Major failure	0:01:28	1
Restoration	2012/06/25 Mon 15:07:52	Parts 2 Quantity error	Minor failure	0:02:21	1

6.5.2 Setting of the <<Access Data>> tab

This section explains the setting of the <<Access Data>> tab for use of the alarm summary function.
On the <<Access Data>> tab, set the logical station number required for communication with the programmable controller CPU and the device data to be used for the alarm summary function.

Screen display



Display contents

Item	Description	Reference
Logical Station Number	Select the logical station number required for performing communication.	Page 41, Section 6.2.2
Communication Settings... button	Used to start the communication setup utility to set a new logical station number and change the settings.	
Remote password*1	Enter the password when the password is set to the connection target programmable controller CPU.	
1) (Access data)	Set the devices or labels use for the alarm summary function.	Page 94, (1) in this section
2) (Number of set devices)	The number of devices currently set is displayed.	Page 94, (2) in this section
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 41, Section 6.2.2

*1 : "Remote password" is displayed when the logical station number selected in "Logical Station Number" on the <<Access Data>> tab is the one for the password function compatible module.

(1) Access data

(a) Registration order

Data are displayed on the <<Alarm Data>> tab in the order of the numbers shown on the left of the <<Access Data>> tab.

Setting example of <<Access Data>> tab

	Device	Data Type	Value	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	M0	Bit	DEC				3	Bit
2	B0	Bit	DEC				3	Bit
3	Y0	Bit	DEC				3	Bit

Data numbers

The device data are displayed on the <<Alarm Data>> tab as shown below.

Displayed in order of data numbers.

	Device	ON time String	
1	M0	Generation	Data No. 1
2	M1	Generation	
3	M2	Generation	
4	B0	Generation	Data No. 2
5	B1	Generation	
6	B2	Generation	
7	Y0	Generation	Data No. 3
8	Y1	Generation	
9	Y2	Generation	

(b) "Device"

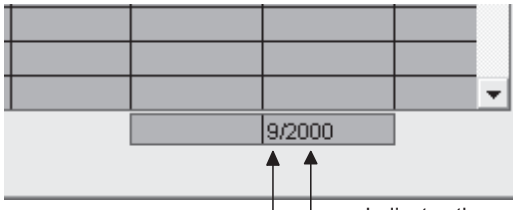
Only the bit device can be specified for the alarm summary.
Enter the device name and device number in this order.

(c) "Dev. Points"

The points of the devices to be consecutively registered starting with the device number set in "Device" are displayed.

(2) The number of set devices

The number of device points registered to the cell area and the number of device points that can be registered are displayed



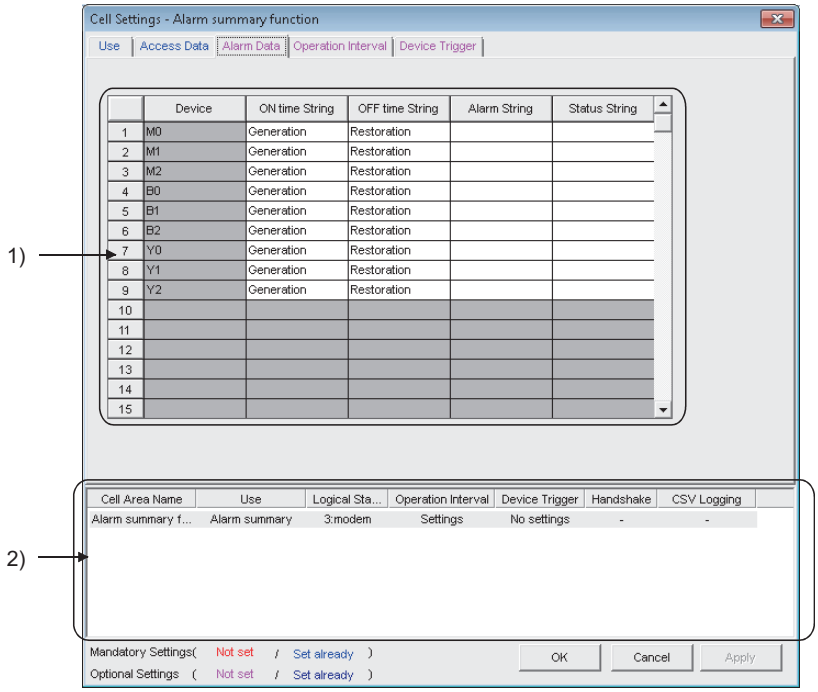
Indicates the number of device points that can be registered to the cell area.

Indicates the number of device points that is registered to the cell area.

6.5.3 Setting of the <<Alarm Data>> tab

This section explains the setting of the <<Alarm Data>> tab for use of the alarm summary function.
On the <<Alarm Data>> tab, set the character strings to be displayed in the cell area.

Screen display



Display contents

Item	Description	Reference
1) (Alarm data)	Set the alarm data to be used for the alarm summary function.	Page 95, (1) in this section to Page 96, (5) in this section
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

(1) "Device"

The device registered on the <<Access Data>> tab is displayed.

(2) "ON time String"

Enter the character string to be displayed in the cell when the registered device turns on.
Number of characters: Up to 16

(3) "OFF time String"

Enter the character string to be displayed in the cell when the registered device turns off.
Number of characters: Up to 16

(4) "Alarm String"

Enter an alarm character string.
Number of characters: Up to 40

(5) "Status String"

Enter a status character string.

Number of characters: Up to 16

(6) Setting example

The following shows the <<Alarm Data>> tab setting example and the data displayed on the Excel spreadsheet.

The <<Alarm Data>> tab setting example

	Device	ON time String	OFF time String	Alarm String	Status String
1	M0	Generation	Restoration	Material strage	Minor failure
2					
3					

Device : M0
ON time String : Generation
OFF time String : Restoration
Alarm String : Material storage
Status String : Minor failure

<Operation of M0>

<Data displayed on Excel spreadsheet>

Displayed in order of "date and time of occurrence", "alarm character string" and "status character string".

Generation	2012/06/28 Thu 20:41:12	Material strage	Minor failure
Restoration	2012/06/28 Thu 20:41:17	Material strage	Minor failure

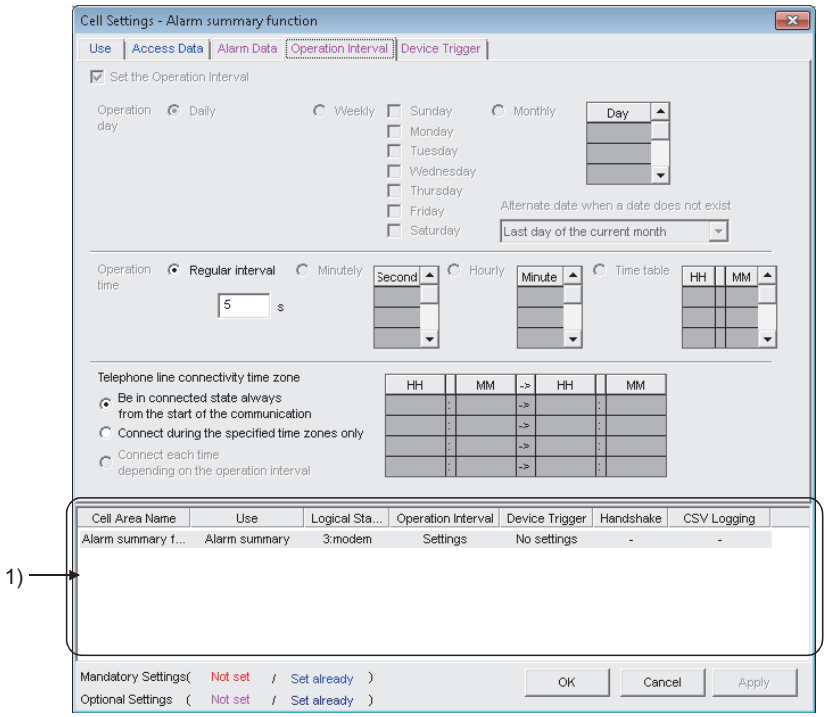
1) Displayed in the cell (when M0 is on).

2) Displayed in the cell (when M0 is off).

6.5.4 Setting of the <<Operation Interval>> tab

This section explains the setting of the <<Operation Interval>> tab for use of the alarm summary function.
On the <<Operation Interval>> tab, set the operation interval for the function of the cell area.

Screen display



Display contents

Item	Description	Reference
Regular interval	Set the operation interval of the alarm summary function.	Page 97, (1) in this section
Telephone line connectivity time zone*1	Set the telephone line connection timing and disconnection timing.	Page 47, Section 6.2.3
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

*1 : "Telephone line connectivity time zone" is displayed when the logical station number selected in "Logical Station Number" on the <<Access Data>> tab is the one for modem communication.

(1) "Regular interval"

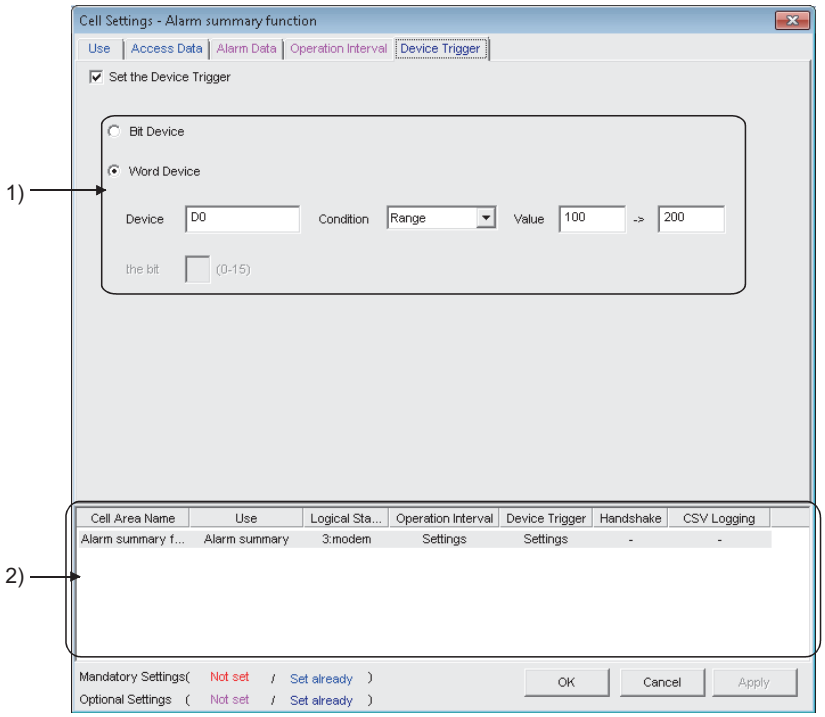
Device data is collected at the set second intervals.
Setting range: 0.001 to 0.999 (in units of 0.001 seconds), 1 to 3600 (in units of 1 second)
If 0.001 to 0.999 seconds are set to the "Regular interval" on the <<Operation Interval>> tab, the ON/OFF time displayed on the Excel spreadsheet is in the "yyyy/mm/dd ddd hh:mm:ss" format.
(Example) When 0.2 seconds interval is set and the ON time is 20 hours 41 minutes 12 seconds 80

Generation	2012/06/28 Thu 20:41:12	Material strage	Minor failure

6.5.5 Setting of the <<Device Trigger>> tab

This section explains the setting of the <<Device Trigger>> tab for use of the alarm summary function.
On the <<Device Trigger>> tab, set the device conditions for the device trigger.

Screen display



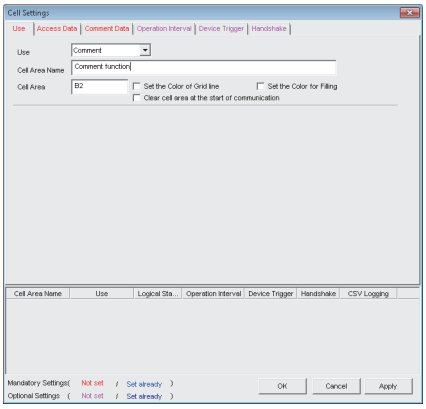
Display contents

Item	Description	Reference
Set the Device Trigger	Set when the device trigger is used.	Page 54, Section 6.2.4
1) (Device conditions)	Set the device or label conditions.	
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

6.6 When "Comment" is Selected

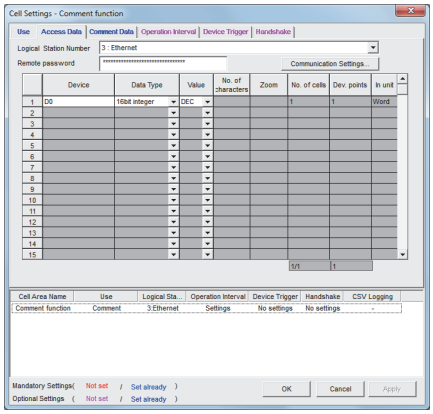
This section explains the Cell Settings screen when "Comment" is selected from "Use" on the <<Use>> tab.

<<Use>> tab



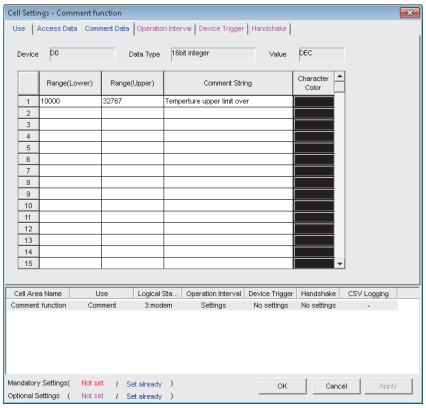
Required setting
☞ Page 100, Section 6.6.1

<<Access Data>> tab



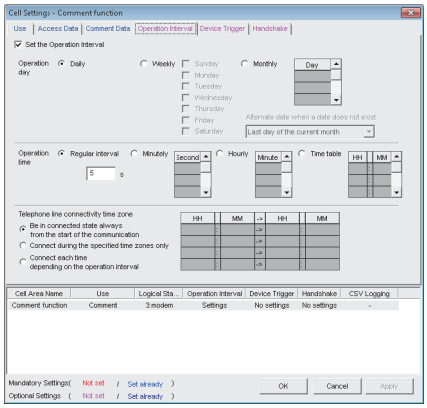
Required setting
☞ Page 101, Section 6.6.2

<<Comment Data>> tab



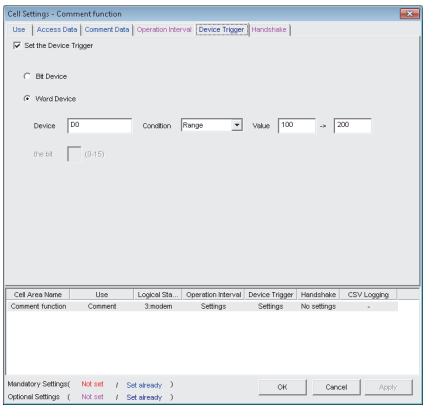
Required setting
☞ Page 103, Section 6.6.3

<<Operation Interval>> tab



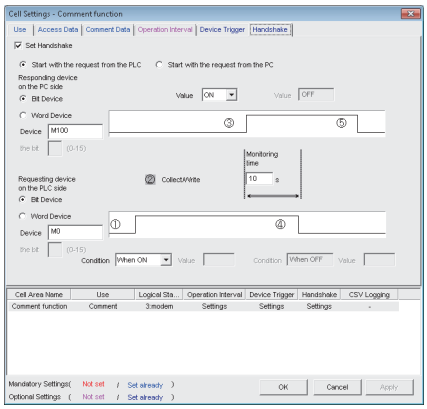
Set as necessary
☞ Page 106, Section 6.6.4

<<Device Trigger>> tab



Set as necessary
☞ Page 108, Section 6.6.5

<<Handshake>> tab

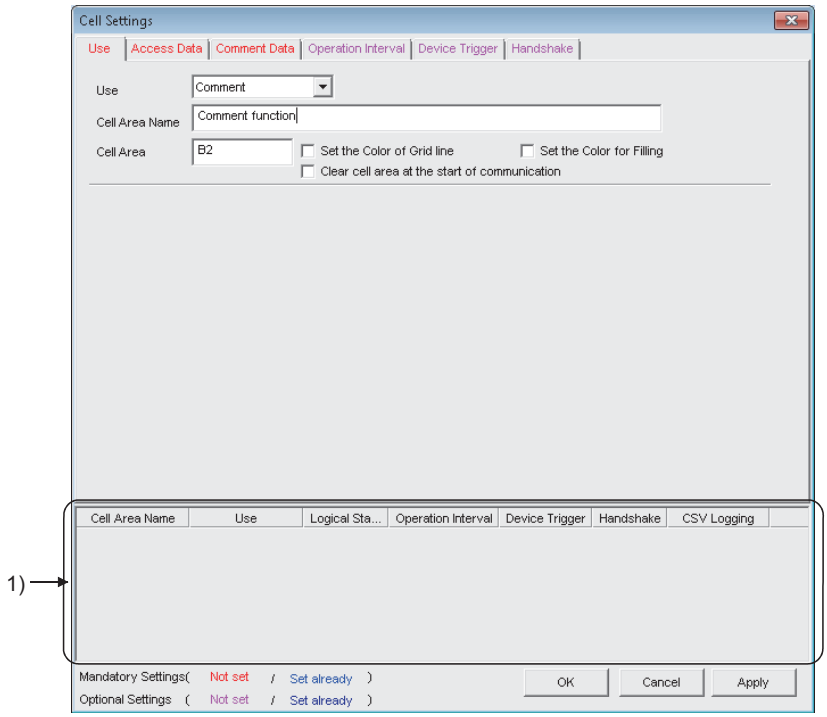


Set as necessary
☞ Page 109, Section 6.6.6

6.6.1 Setting of the <<Use>> tab

This section explains the setting of the <<Use>> tab for use of the comment display function.
On the <<Use>> tab, set the cell area.

Screen display



Display contents

Item	Description	Reference
Use	Set the function to be used for the specified cell area. Select "Comment" when using the comment display function.	-
Cell Area Name	Set the name of the specified cell area. (Maximum number of cell area names : 500)	
Cell Area	Enter the value to specify the cell area.	Page 100, (1) in this section
Set the Color of Grid line	Set whether the specified cell area is provided with grid lines (including color designation) or not.	Page 34, Section 6.2.1
Set the Color for Filling	Set whether the specified cell area is colored or not.	
Clear cell area at the start of communication	When "Clear cell area at the start of communication" is selected, the data in the cell area specified at the start of communication is cleared. (Default: cleared)	Page 71, Section 6.3.1
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

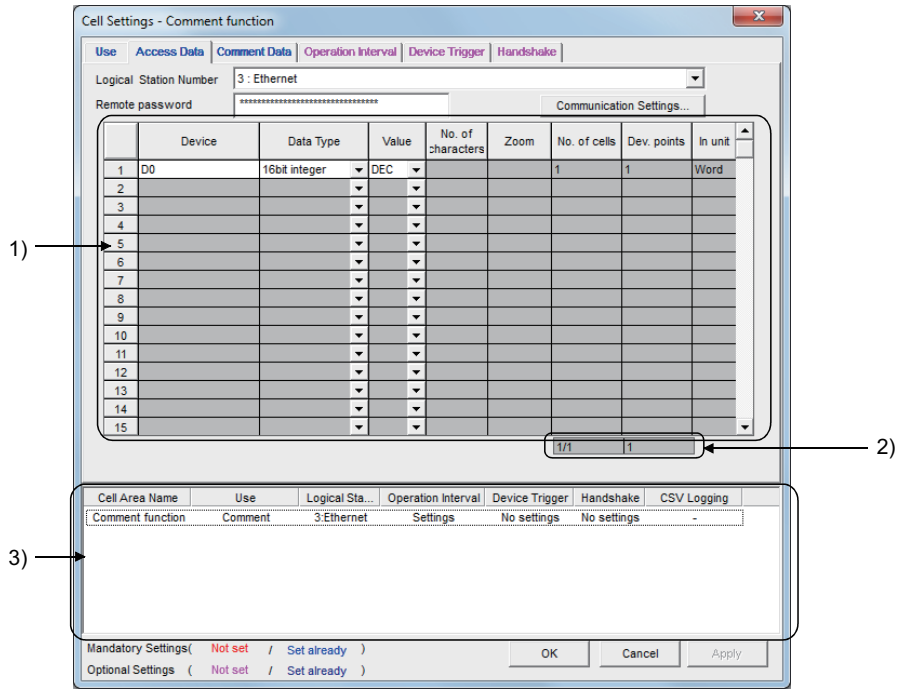
(1) "Cell Area"

Set the cell area to be used by the comment display function.
Setting range: 1

6.6.2 Setting of the <<Access Data>> tab

This section explains the setting of the <<Access Data>> tab for use of the comment display function.
On the <<Access Data>> tab, set the logical station number required for communication with the programmable controller CPU and the device data to be used for the comment display function.

Screen display



Display contents

Item	Description	Reference
Logical Station Number	Select the logical station number required for performing communication.	Page 41, Section 6.2.2
Communication Settings... button	Used to start the Communication Setup Utility to set a new logical station number and change the settings.	
Remote password*1	Enter the password when the password is set to the connection target programmable controller CPU.	
1) (Access data)	Set the devices or labels use for the comment display function.	Page 102, (1) in this section
2) (Number of set devices)	The number of devices currently set is displayed.	Page 41, Section 6.2.2
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

*1 : "Remote password" is displayed when the logical station number selected in "Logical Station Number" on the <<Access Data>> tab is the one for the password function compatible module.

(1) Access data

(a) "Device"

Set the device or label used for the comment display function.

- When entering a device, enter a device name and device number in this order.
- When entering a label, enter the label name.
- The applicable data types are Bit and Word.
- When entering a label, enter other than structured data type label and array type label.

For the accessible devices, refer to the following section.

☞ Page 27, Section 3.2 Accessible CPUs and Accessible Device Ranges

(b) "Data Type"

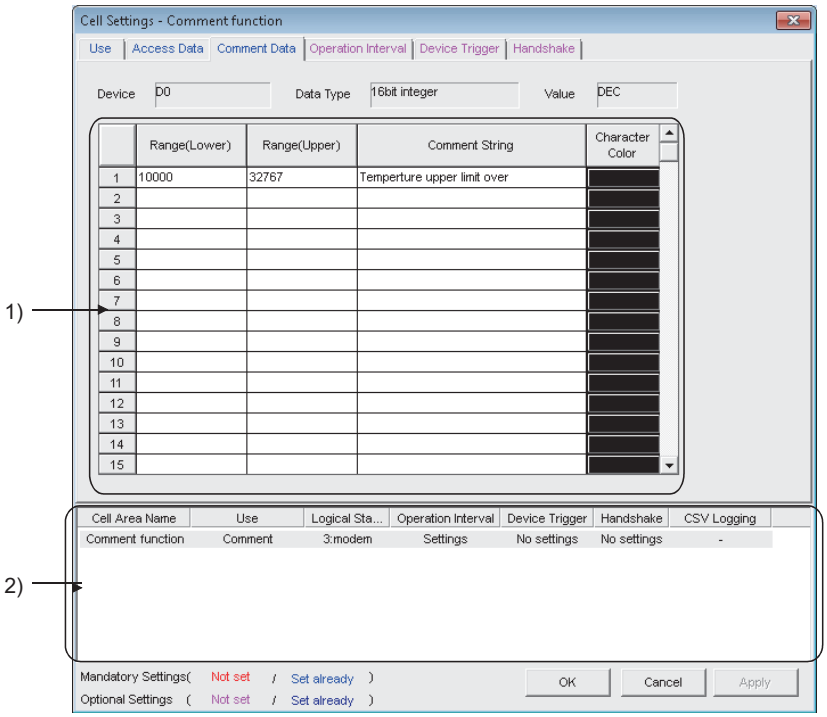
Set the data type of the device used for the comment display function.

Item	Device That Can be Specified	Description
Bit	Bit device	The bit devices set in "Device" are displayed in a single cell in units of one bit.
	Word device (Bit specification)	Designated bits for word device set in "Device" are displayed in a single cell in units of one bit (e.g. D0.0).
16 bit integer (-32768 to 32767)	Bit device	Set when 1 word (16 bits), starting from the device number set in 16 bit integer "Device", is used for the comment display function.
	Word device	Set when the word device set in "Device" is used for the comment display function.
32 bit integer (-2147483648 to 2147483647)	Bit device	Set when 2 words (32 bits), starting from the device number set in "Device", are used for the comment display function.
	Word device	Set when 2 words, starting from the device number set in "Device", are used for the comment display function.
	Double word device	Set when double word devices set in "Device" are used for the comment display function.

6.6.3 Setting of the <<Comment Data>> tab

This section explains the setting of the <<Comment Data>> tab for use of the comment display function.
On the <<Comment Data>> tab, set the comment data to be displayed in the cell area.

Screen display



Display contents

Item	Description	Reference
Device	The device set in "Device" on the <<Access Data>> tab is displayed.	-
Data Type	The data type set in "Data Type" on the <<Access Data>> tab is displayed.	
Value	The content set to the "Value" on the <<Access Data>> tab is displayed.	
1) (Comment data)	Set the comment data to be used for the comment display function.	Page 104, (1) in this section
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

(1) Comment data

(a) "Range (Lower)" and "Range (Upper)"

Set the lower and upper limit values of the device.

The setting range changes depending on the data type.

The following table shows the setting range of each data type.

Data Type	Setting Range
Bit	1(ON), 0(OFF)
16 bit integer	-32768 to 32767
32 bit integer	-2147483648 to 2147483647

(b) "Comment String"

Enter the comment character string to be displayed in the cell.

Number of characters: up to 40

(c) "Character Color"

Set the color of the comment character string displayed in the cell.

Depending on the specified colors, all colors may turn to gray.

For details, refer to the following consideration.

☞ Page 7, OPERATING CONSIDERATIONS

Point

If multiple comment data are set and their setting ranges are overlapped, the comment character string with the lowest data number is displayed.
Be sure to prevent double setting of the setting ranges.

(2) Setting example

The following shows the setting examples in the cases where the data type is set to "Bit" and "16 bit integer".

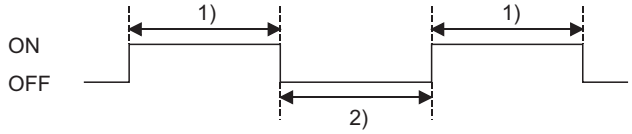
(a) When data type is set to "Bit"

<<Comment data>> tab setting example

Device: M0 Data Type: 16bit integer Value: DEC

	Range(Lower)	Range(Upper)	Comment String	Character Color
1	0	0	Nomal operation	
2	1	1	Error occurrence	
3				

Operation of M0



1) While M0 is on, "Error occurrence" is displayed in the cell.
2) While M0 is off, "Normal operation" is displayed in the cell.

(b) When data type is set to "16 bit integer"

<<Comment data>> tab setting example

Device: D0 Data Type: 16bit integer Value: DEC

	Range(Lower)	Range(Upper)	Comment String	Character Color
1	10000	32767	Temperture upper limit over	
2				
3				

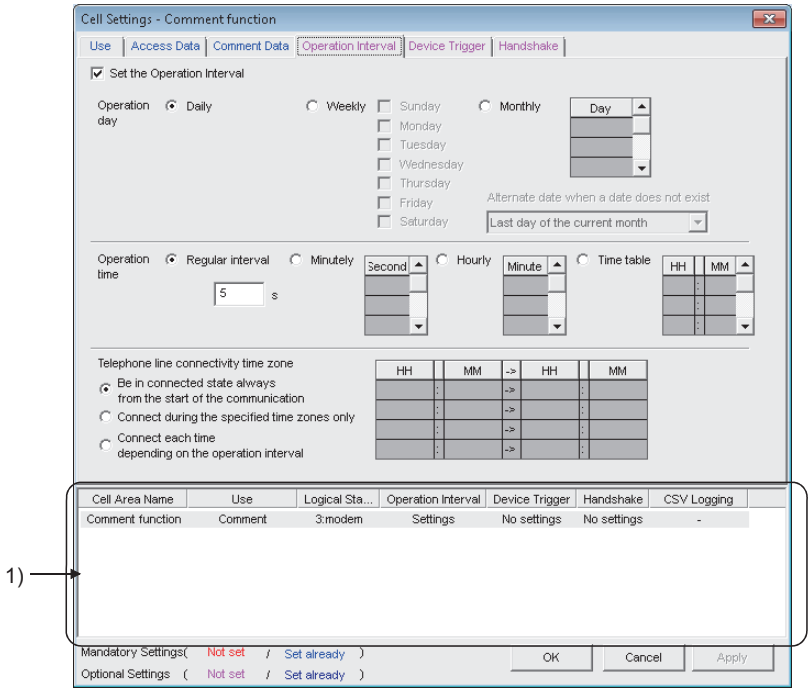
Operation of D0

1) If the D0 value is 10000 or more, "Temperature upper limit over" is displayed in the cell.
2) If the D0 value is less than 10000, no comment character string is displayed.

6.6.4 Setting of the <<Operation Interval>> tab

This section explains the setting of the <<Operation Interval>> tab for use of the comment display function.
In the <<Operation Interval>> tab, set the day, time and time zone of the activation of the function for the cell area.

Screen display



Display contents

Item	Description	Reference
Set the Operation Interval	Set the operation of the cell area valid or invalid.	Page 47, Section 6.2.3
Operation day	Set the operation day of the comment display function activation.	
Operation time	Set the operation time of the comment display function activation.	Page 107, (1) in this section
Telephone line connectivity time zone*1	Set the telephone line connection timing and disconnection timing.	Page 47, Section 6.2.3
1) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

*1 : "Telephone line connectivity time zone" is displayed when the logical station number selected in "Logical Station Number" on the <<Access Data>> tab is the one for modem communication.

(1) "Operation time"

The setting except for "Regular interval" is the same as that of the logging function.
For the setting except for "Regular interval", refer to the following section.
☞ Page 47, Section 6.2.3

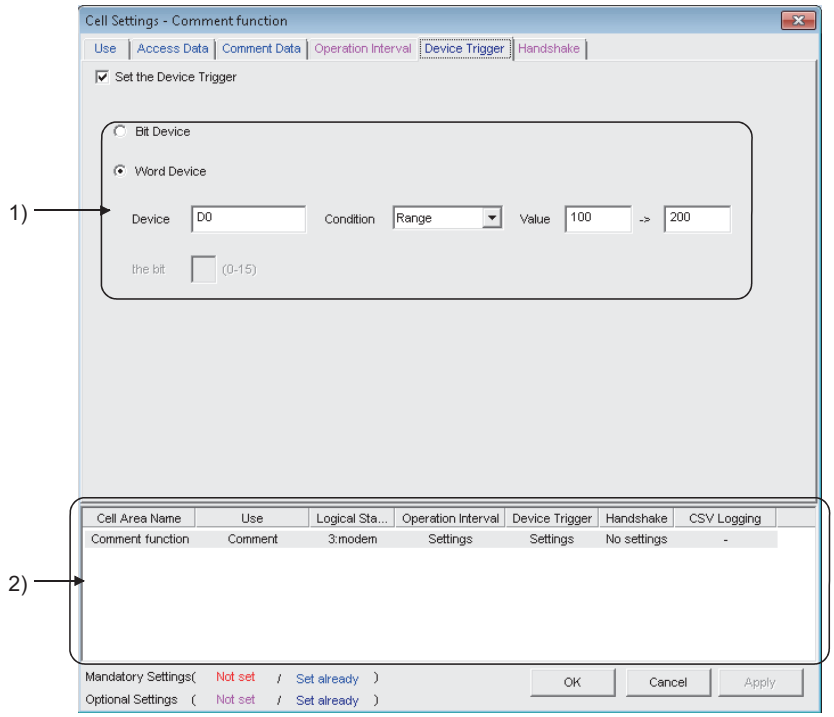
(a) When "Regular interval" is selected

Device data is collected at the set second intervals.
When modem communication is used and "Telephone line connectivity time zone" is set to "Connect each time depending on the operation interval", set "Regular interval" to 30 seconds or more.
When set for lesser "seconds" than the actual communication time, the fixed interval communication cannot be established. Hence, set for longer than the actual communication time.
For Communication time, refer to the following performance value.
☞ Page 152, Processing Speed of MX Sheet
Setting range: 0.001 to 0.999 (in units of 0.001 seconds), 1 to 3600 (in units of 1 second)

6.6.5 Setting of the <<Device Trigger>> tab

This section explains the setting of the <<Device Trigger>> tab for use of the comment display function.
In the <<Device Trigger>> tab, set the device conditions for the device trigger.

Screen display



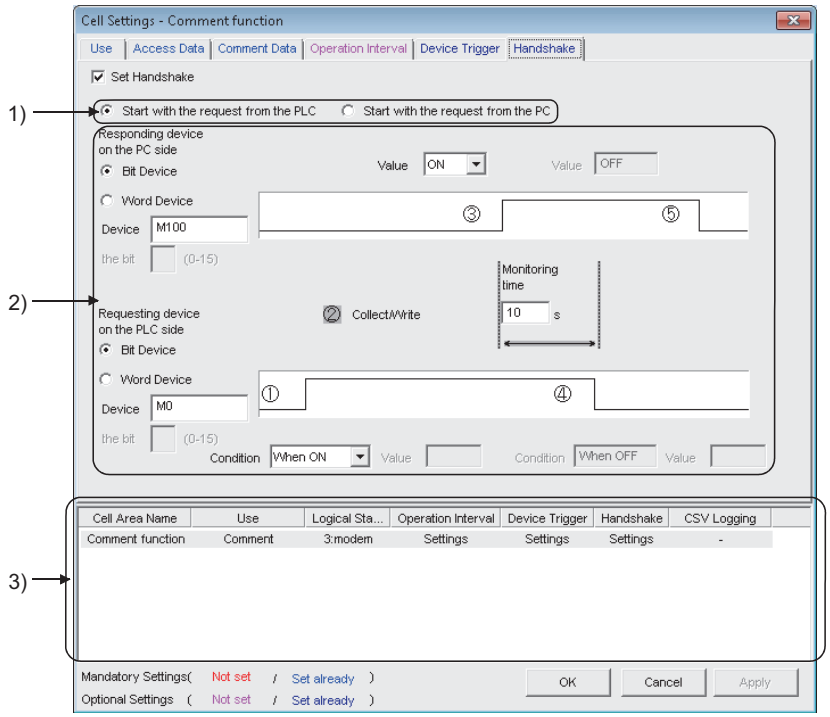
Display contents

Item	Description	Reference
Set the Device Trigger	Set when the device trigger is used.	Page 54, Section 6.2.4
1) (Device conditions)	Set the device or label conditions.	
2) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

6.6.6 Setting of the <<Handshake>> tab

This section explains the setting of the <<Handshake>> tab for use of the comment display function.
On the <<Handshake>> tab, set the handshake requesting source and handshake processing.

Screen display



Display contents

Item	Description	Reference
Set Handshake	Set when using a handshake.	Page 57, Section 6.2.5
1) (Requesting source setting)	Set the requesting source of the handshake.	
2) (Handshake processing)	Set the handshake processing.	
3) (Preset cell areas)	The settings of the cell areas preset to the Excel book are displayed.	Page 34, Section 6.2.1

CHAPTER 7 AUTOMATIC SAVE SETTING

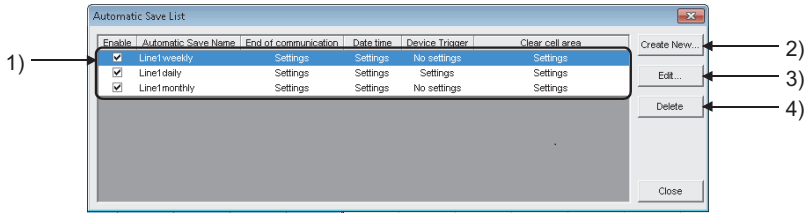
The following explains the setting content for saving the Excel book or Excel spreadsheet (CSV format) during MX Sheet operation (hereafter abbreviated to the Automatic save setting data).

7.1 Operation of Automatic Save List Screen

Manage the automatic save conditions in the form of a list In the Automatic Save List screen.

Screen display

[MX Sheet] ⇨ [Automatic Save List] ( )



Display contents

Item	Description	Reference
1) Automatic save name list	Display a list of automatic save names created in the Automatic save screen (☞ Page 111, Section 7.2).	-
Enable	Select the one to be automatically saved. Selected when new data is created.	
Automatic save name	Display the automatic save names created in the Automatic save screen.	
End of communication	Display whether the "Save at the end of communication" check box in the Automatic save screen is selected or not in the form of Settings or No settings.	
Date time	Display whether the "Set the date and time" check box in the Automatic save screen is selected or not in the form of Settings or No settings.	
Device trigger	Display whether the "Set the Device trigger" check box in the Automatic save screen is selected or not in the form of Settings or No settings.	
Clear cell area	Display whether the " Clear cell area after automatic save" check box in the Automatic save screen is selected or not in the form of Settings or No settings.	
2) Create New... button	Display the Automatic save screen and create new automatic save setting data.	Page 111, Section 7.2
3) Edit... button	Display the Automatic save screen and change the content of the existing automatic save setting data.	
4) Delete button	Delete the selected automatic save name from the automatic save name list	-

Point

- When the automatic save name list is double-clicked or the Enter key is pressed with the clicked line highlighted, that operation has the same function as the Edit... button.
- When the Delete key is pressed with the clicked line highlighted, that operation has the same function as the Delete button.

7.2 Setting of Automatic Save Screen

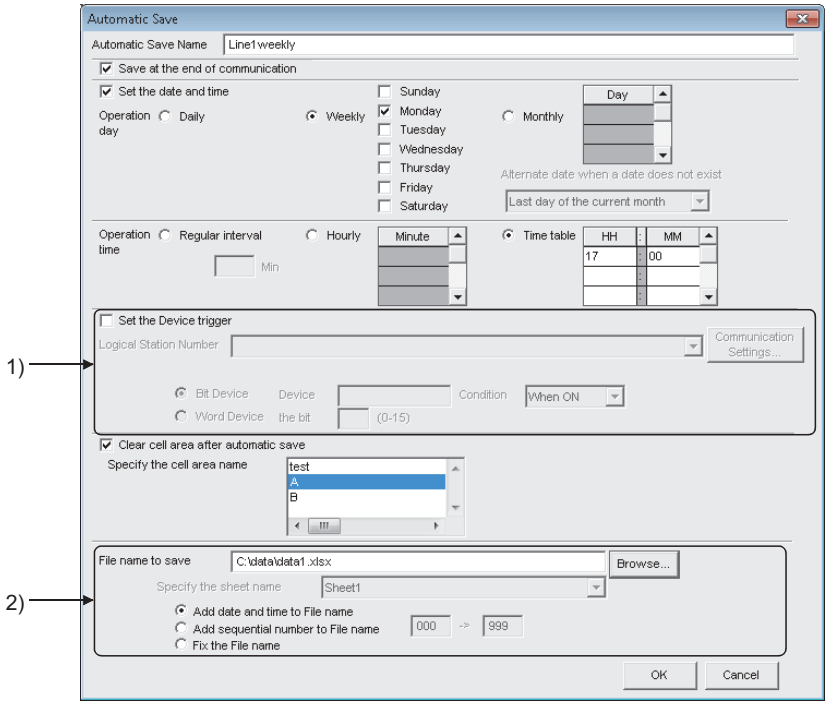
Set the save timing and file name on the Automatic Save screen.

Point

- Save timing
  The following three save timings are available for the automatic save setting. (All of them can be set at a time.)
  - Automatic save is performed at the end of communication.
  - Automatic save is performed at a specified time.
  - Automatic save is performed using the device trigger.

Screen display

- **Click the Create New... button or the Edit... button on the Automatic Save List screen.**



Display contents

Item	Description	Reference
Automatic save name	Attach specific names to the automatic save setting data. Up to 50 automatic save names can be registered.	-
Save at the end of communication	Set when performing automatic save at the end of communication.	
Set the date and time	Set when performing automatic save at the specified date and time.	
Operation day	Set the operation day when automatic save is performed at the specified date and time.	Page 113, (1) in this section
Operation time	Set the operation time when automatic save is performed at the specified date and time.	Page 113, (2) in this section
Set the device trigger	Set when performing automatic save using the device trigger.	Page 113, (3) in this section
1) (Device conditions)	Set the device conditions for the device trigger.	Page 114, (4) in this section

Item	Description	Reference
Clear cell area after automatic save	Set when clearing the cell area data after automatic save.	Page 115, (5) in this section
Specify the cell area name	From the list, select the cell area name that is the target of "Clear cell area after automatic save".	Page 115, (6) in this section
2) (Save file setting)	Set the file name to automatically save data.*1	Page 115, (7) in this section
OK button	Register the newly created or edited "Automatic save name" to the Automatic Save List screen.	Page 116, (8) in this section

*1 : A UNC path name (\\server name\path name) cannot be specified as a file name. After assigning the network drive, specify the path name.

Point

When "Clear cell area at the start of communication" is checked on the <<Use>> tab of the Cell Settings screen, MX Sheet clears the target cell area data at the start of communication and starts data collection.
In order to save the data at the end of communication, select "Save at the end of communication".

(1) "Operation day"

Set the operation day of the automatic save function.

(a) When "Daily" is selected

Save is performed every day.

(b) When "Weekly" is selected

Save is performed on the specified day of the week only.
Multiple days of the week can be set.

(c) When "Monthly" is selected

Save is performed on the specified days only.
If the specified day does not exist in some months, an alternate day can be specified.
Number of days that can be set: 31
<When "15th" is set>
Operation is performed on the 15th every month, e.g. January 15, February 15, March 15.
<When "31st" is set>
Excepting February, April, June, September and November, operation is performed on the 31st every month.
For February, April, June, September and November, set the alternate day and processing in "Alternate day when a date does not exist".
The following table shows the setting items of "Alternate day when a date does not exist".

Item	Description
Last day of the current month	Operation is performed on the last day of February, April, June, September or November.
First day of the next month	Operation is performed on the first day of the next month.
No operation	Operation is not performed in February, April, June, September and November.

(2) "Operation time"

Set the operation time of automatic save.

(a) When "Regular interval" is selected

The Excel book is saved at the set minute intervals.
Setting range: 1 to 1440
<When "Regular interval" is set to "5">
The Excel book is saved at intervals of 5 minutes, e.g. 8:05, 8:10, 8:15.

(b) When "Hourly" is selected

Automatic save is performed at the specified minute every hour.
Number of times that can be set: 60

(c) When "Time table" is selected

Automatic save is performed at the specified time.
Number of times that can be set: 50

(3) "Set the Device trigger"

Set this when performing automatic save using the device trigger.
Whether the device trigger conditions are satisfied or not is checked at intervals of 1 second.

(4) Device conditions

(a) "Logical Station Number"

Select the logical station number used for the device trigger.

If the logical station number is already set, the number is displayed in the list box and can be selected.

If the logical station number is not set, click the Communication Settings... button and set a new logical station number.

Point

The Remote password screen is displayed when the setting of the logical station number selected in "Logical Station Number" includes information on the connection to the module with the password function.
When the password is set to the connection target programmable controller CPU, enter the password.
It need not be entered when the password is not set.

(b) Communication Settings... button

This button is used to start the communication setup utility to set a new logical station number and change the settings.

Select "Run as administrator" when the screen is displayed asking if execute programs with administrator authority or not.

After starting the communication setup utility, click the Wizard.. button and set a new logical station number and change the settings with the Communication Setting Wizard.

For the detailed explanation of the communication setup utility and Communication Setting Wizard, refer to the following manual.

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(c) Device type

Set the type of the device used for the device trigger.

Item	Description
Bit Device	Set when using a bit device for the device trigger.
Word Device	Set when using a word device for the device trigger.

(d) "Device"

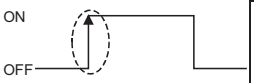
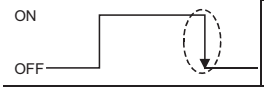
Enter a device or label used for the device trigger.

When using a device: Enter a device name and device number in this order.

When using a label: Enter a label name.
The applicable data types is Bit.
When entering a label, enter other than structured data type label and array type label.

(e) "Condition"

Set the device trigger conditions

Item	Available Device	Description
When ON 	Bit device	Set when automatic save is to be performed when the bit device turns on.
	Word device	Set when automatic save is to be performed when the corresponding bit of the word device turns on (value: 1).
When OFF 	Bit device	Set when automatic save is to be performed when the bit device turns off.
	Word device	Set when automatic save is to be performed when the corresponding bit of the word device turns off (value: 0).

(f) "the bit"

Set the corresponding bit of the word device.

Setting range: 0 to 15

(5) "Clear cell area after automatic save"

Set whether the data of the cell area selected in the "Specify the cell area name" is cleared or not after automatic save is performed.

To clear the cell area data after automatic save, select the check box.

(6) "Specify the cell area name"

From the list box, select the "Cell Area Name" of the cell area whose data is cleared after automatic save. (Multiple names can be selected.)

The list box displays all "Cell Area Names" set in the Cell Settings screen.

(7) Save file setting

(a) "File name to save"

Set the storage location and file name of the Excel book to be saved automatically.

The Excel file (.xls, .xlsx*1, .xlsm*1, .xlsb*1) or HTML file (.htm)*2 or CSV file (.csv) is available as the file type.

*1 : xlsx, .xlsm, and .xlsb are Workbook-format extensions added to Microsoft® Excel® 2007 or later.

*2 : For the continuous operation when saving data automatically in HTML format, refer to the following appendix.

☞ Page 164, Appendix 6

(b) "Specify the sheet name"

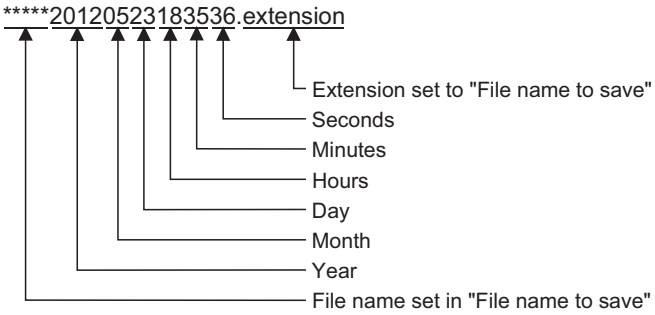
Select the sheet name to be saved from the combo box.

It can be specified only when the "File name to save" is a CSV file.

(c) "Add date and time to File name"

The data and time data are added to the file name set in "File name to save".

The following shows the file name format when data is saved.



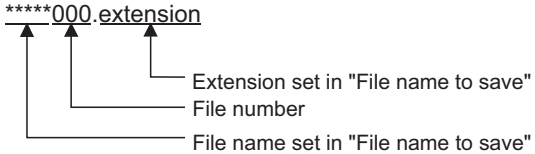
(d) "Add sequential number to File name"

The file number is added to the file name set in "File name to save".

A serial number can be set within the range from 000 to 999.

When the number reaches the last, the data of the next file are overwritten to the file of the first number.

The following shows the file name format when data is saved.



(e) "Fix the File name"

Data is overwritten to the file set in "File name to save".

(8) OK button

Register the newly created or edited automatic save setting data.

When the registration is completed, the automatic save name and settings are displayed as shown below in the Automatic Save List screen.

Operation		Display in "Automatic save list"
Create New		The automatic save name and settings are additionally displayed at the bottom of the list, and "enable" is selected.
Edit	When automatic save name is changed	The automatic save name and settings are additionally displayed at the bottom of the list, and "enable" is selected.
	When automatic save name is the same	The automatic save name and settings are displayed in the same position of the list. When the settings are changed, the new settings are displayed.

Point

When registering the existing automatic save setting data under a different automatic save name, change the automatic save name in the Automatic save screen.

CHAPTER 8 AUTOMATIC PRINT SETTING

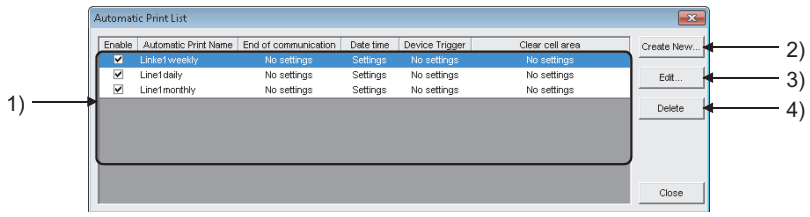
The following explains the setting content for printing the Excel book or Excel spreadsheet (CSV format) during MX Sheet operation (hereafter abbreviated to the Automatic print setting data).

8.1 Operation of Automatic Print List screen

Manage the automatic print conditions in the form of a list in the Automatic Print List screen.

Operating procedure

[MX Sheet] ⇨ [Automatic Print Setting] ( )



Display contents

Item	Description	Reference
1) Automatic print name list	Display a list of automatic print names created on the Automatic print screen (☞ Page 118, Section 8.2).Automatic print	-
Enable	Check the one to be automatic printed. Checked when new data is created.	
Automatic print name	Display the automatic print names created on the Automatic print screen.	
End of communication	Display whether the "Print at the end of communication" check box in the Automatic print screen is checked or not in the form of Settings or No settings.	
Date time	Display whether the "Set the date and time" check box in the Automatic print screen is checked or not in the form of Settings or No settings.	
Device trigger	Display whether the "Set the Device trigger" check box in the Automatic print screen is checked or not in the form of Settings or No settings.	
Clear cell area	Display whether the "Clear cell area after automatic print" check box in the Automatic print screen is checked or not in the form of Settings or No settings.	
2) Create New... button	Display the Automatic print screen and create new automatic print setting data.	Page 118, Section 8.2
3) Edit... button	Display the Automatic print screen and change the content of the existing automatic print setting data.	
4) Delete button	Delete the selected automatic print name from the automatic print name list.	-

Point

- When the automatic print name list is double-clicked or the Enter key is pressed with the clicked line highlighted, that operation has the same function as the Edit... button.
- When the Delete key is pressed with the clicked line highlighted, that operation has the same function as the Delete button.

8.2 Setting of Automatic Print Screen

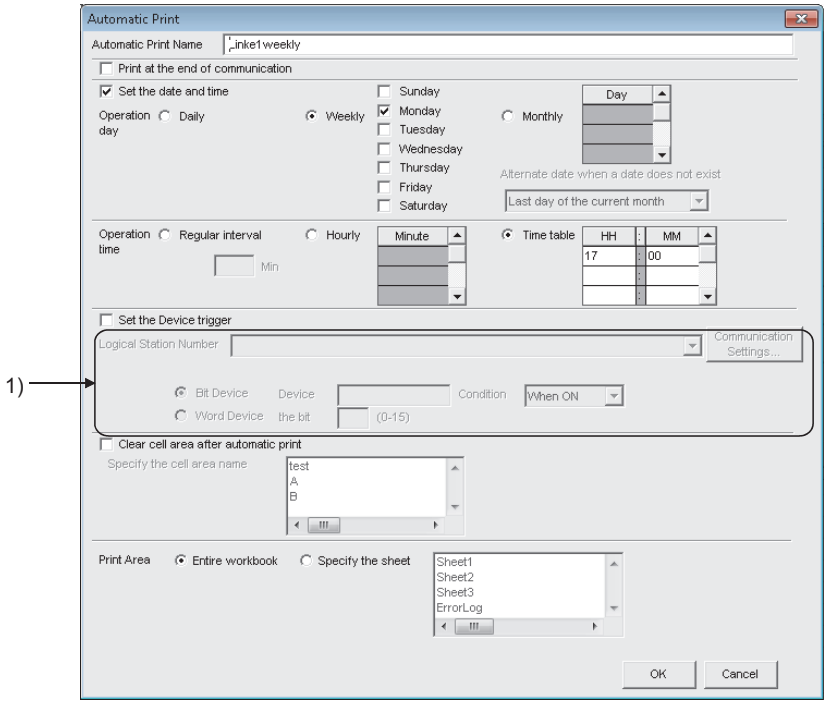
Set the print timing and print area in the Automatic Print screen.

Point

- Print timing
  The following three timings are available for the automatic print setting. (All of them can be set at a time.)
  For the details, refer to the following chapter.
  ☞Page 110, CHAPTER 7
  - Automatic print is performed at the end of communication.
  - Automatic print is performed at a specified time.
  - Automatic print is performed using the device trigger.

Screen display

- **Click the Create New... button or the Edit... button on the Automatic Print List screen.**



Display contents

Item	Description	Reference
Automatic save name	Manage the automatic print setting data with specific names. Up to 50 automatic print names can be registered.	-
Save at the end of communication	Set when performing automatic print at the end of communication.	Page 110, Section 7.1
Set the date and time	Set when performing automatic print at the specified date and time.	
Operation day	Set the operation day when automatic print is performed at the specified date and time.	
Operation time	Set the operation time when automatic print is performed at the specified date and time.	
Set the device trigger	Set when performing automatic print using the device trigger.	
1) (Device conditions)	Set the device conditions for the device trigger	

Item	Description	Reference
Clear cell area after automatic save	Make setting when clearing the cell area data after automatic print.	Page 119, (1) in this section
Specify the cell area name	From the list, select the cell area name that is the target of "Clear cell area after automatic print".	Page 119, (2) in this section
Print Area	Set the area where automatic print is performed.	Page 119, (3) in this section
OK button	Register the newly created or edited "Automatic Print Name" in the Automatic Print List screen.	Page 119, (4) in this section

(1) "Clear cell area after automatic print"

Set whether the data of the cell area selected in the "Specify the cell area name" is cleared or not after automatic print is performed.

To clear the cell area data after automatic print, select the check box.

(2) "Specify the cell area name"

From the list box, select the "Cell Area Name" of the cell area whose data is cleared after automatic print. (Multiple names can be selected.)

The list box displays all "Cell Area Names" set in the Cell Settings screen.

(3) "Print Area"

Set the area where automatic print is performed.

(a) "Entire workbook"

The entire Excel book (all sheets) where automatic print setting is set is printed automatically.

(b) "Specify the sheet"

Automatic print is executed for the specified sheet only.

Multiple sheets can be selected and printed simultaneously.

(4) OK button

Register the newly created or edited automatic print setting data.

When the registration is completed, the automatic print name and settings are displayed in the Automatic Print List screen as described below.

Operation		Display in "Automatic print list"
Create New		The automatic print name and settings are additionally displayed at the bottom of the list, and "enable" is selected.
Edit	When automatic print name is changed	The automatic print name and settings are additionally displayed at the bottom of the list, and "enable" is selected.
	When automatic print name is the same	The automatic print name and settings are displayed in the same position of the list. When the settings are changed, the new settings are displayed.

Point

- When registering the existing automatic print setting data under a different automatic print name, change the automatic print name in the Automatic print screen.
- When multiple printers are set to a single personal computer, the Excel spreadsheet where automatic print is set is output from the printer specified to "Set as Default" in [Start] ⇨ [Control Panel] ⇨ [Hardware and Sound] ⇨ [Devices and Printers].

CHAPTER 9 AUTOMATIC COMMUNICATION STARTUP/CANCEL SETTING

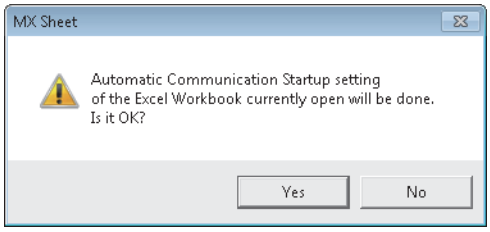
This chapter explains the settings for starting communication with the programmable controller CPU automatically at the start of the Excel book. Also, explains the method for cancelling the automatic communication setting to be set.

(1) Automatic Communication Startup Setting

Operating procedure

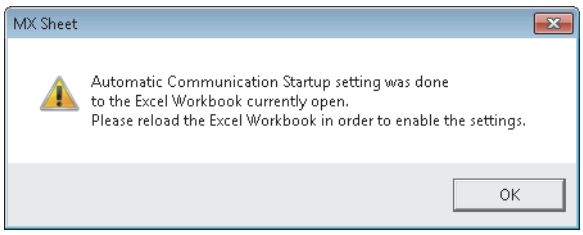
1. **[MX Sheet] ⇨ [Automatic Communication Startup Setting]** ( )
2. **The following message is displayed.**

   Click the Yes button to set the automatic communication startup setting to the Excel book being edited.



3. **The following message is displayed.**

   Click the OK button.


MX Sheet
Automatic Communication Startup setting was done
to the Excel Workbook currently open.
Please reload the Excel Workbook in order to enable the settings.
OK

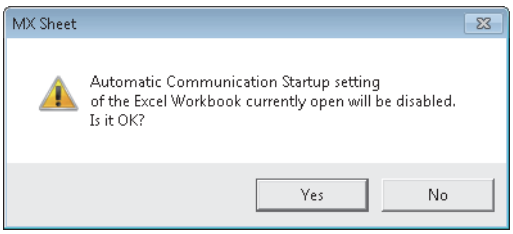
After editing the Excel book, restart the Excel book to set the automatic communication startup setting to valid.

(2) Automatic Communication Startup Disabled

Operating procedure

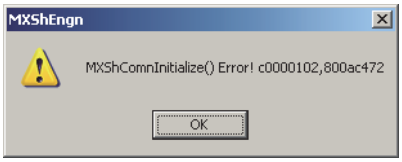
1. **[MX Sheet] ⇨ [Automatic Communication Startup Setting]** ( )
2. **The following message is displayed.**

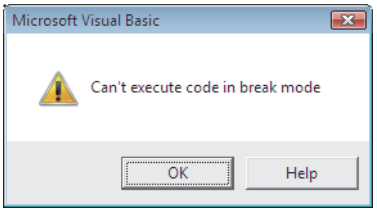
   Click the Yes button to disable the automatic communication startup setting of the Excel book being edited.



Point

- For the automatic communication startup setting, do not save the Excel book under the hidden status. An error occurs when starting the Excel book and MX Sheet cannot be used. In such case, save the Excel book under the display status, and restart Excel. For the method to display the Excel book, refer to the following consideration.
  ☞ Page 12, (7)(b) Corrective action
- When a workbook that has been configured for "Automatic Communication Startup" using MX Sheet is opened using Microsoft® Excel® 2007 or later, the following anomalous situations may occur.
  - Excel stops responding.
  - One of the following error messages is displayed.





If the symptoms described above occur, refer to the following appendix and install the COM add-in "MXShRibbon".
☞ Page 172, Appendix 8

CHAPTER 10 START COMMUNICATION AND END COMMUNICATION

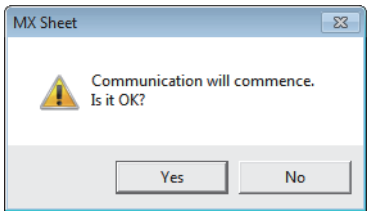
This chapter explains the start and end of MX Sheet communication.

10.1 Start Communication

This section explains the procedure to start MX Sheet communication manually.

Operating procedure

1. **[MX Sheet] ⇨ [Start Communication]**
   The following message is displayed.



2. **Click the Yes button.**
   Start communication between the Excel book being edited, and the programmable controller CPU and read/write device data.

Point

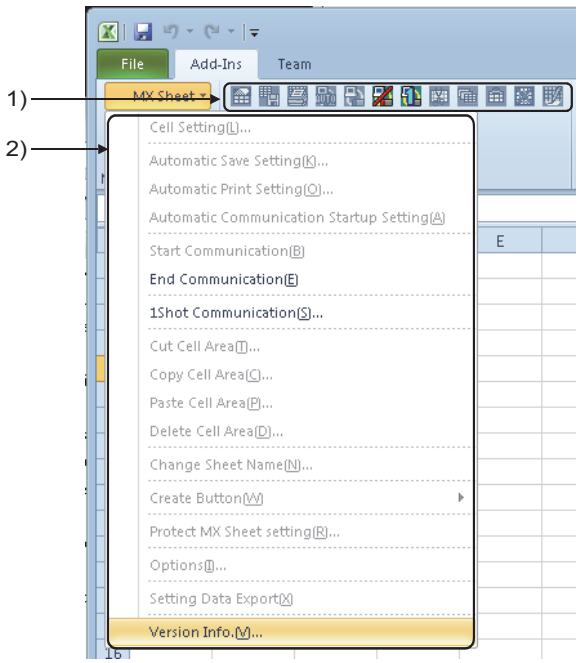
- When using Microsoft® Excel® 2003, select [MX Sheet] ⇨ [Start Communication] on the menu bar to start communication.
- The communication can be also started by clicking the created start communication button. (☞ Page 134, Section 14.1)
- Do not operate other Excel book during communication.

(1) Display of Excel book and task bar during communication

The following shows how the Excel book, which is communicating with the programmable controller CPU using MX Sheet, and the task bar are displayed.

(a) Display of Excel book

Screen display



Display contents

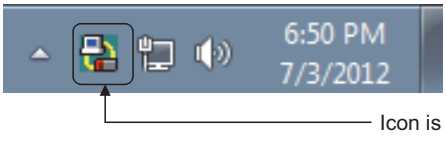
Item	Status during Communication
1) (Icon)	Only the Communication End and 1 Shot Communication icons can be selected.
2) (MX Sheet menu)	Only [Communication End], [1 Shot Communication], and [Version Info] can be selected.

Point

When using Microsoft® Excel® 2003, the <<Add-Ins>> tab is not displayed.

(b) Display of task bar

During communication with the programmable controller CPU using MX Sheet, the following icon is displayed on the task bar of Windows®.



Icon is displayed on task bar.

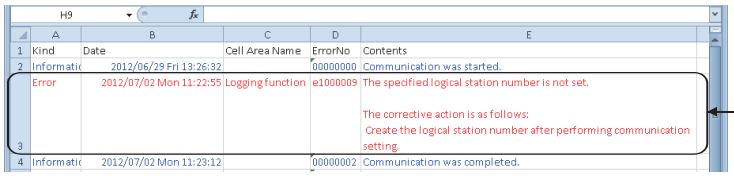
(2) Confirmation at communication error

If an error occurs at the start of communication or during communication, the error information is displayed on the "ErrorLog" sheet.

When a communication error has occurred, end MX Sheet communication and correct the error in accordance with the corrective action on the "ErrorLog" sheet.

For details of the "ErrorLog" sheet, refer to the following chapter.

☞ Page 150, CHAPTER 19



	A	B	C	D	E
1	Kind	Date	Cell Area Name	ErrorNo	Contents
2	Informatic	2012/06/29 Fri 13:26:32		00000000	Communication was started.
3	Error	2012/07/02 Mon 11:22:55	Logging function	e1000009	The specified logical station number is not set. The corrective action is as follows: Create the logical station number after performing communication setting.
4	Informatic	2012/07/02 Mon 11:23:12		00000002	Communication was completed.

At occurrence of communication error, error information is displayed on the "ErrorLog" sheet.

10.2 End Communication

This section explains the procedure to end MX Sheet communication.

Operating procedure

[MX Sheet] ⇨ [End Communication] ( )

Point

- When using Microsoft® Excel® 2003, select [MX Sheet] ⇨ [End Communication] on the menu bar to end communication.
- The communication can be also ended by clicking the end communication button. (☞ Page 138, Section 14.2)

(1) Confirmation at communication end

At the end of communication, MX Sheet displays the communication end message on the "ErrorLog" sheet.
Confirm the message on the "ErrorLog" sheet at the end of communication.
For details of the "ErrorLog" sheet, refer to the following chapter.
☞ Page 150, CHAPTER 19

	A	B	C	D	E	F	G	H
1	Kind	Date	Cell Area Name	ErrorNo	Contents			
2	Information	2012/07/04 Wed 09:41:03		00000000	Communication was started.			
3	Information	2012/07/04 Wed 09:41:16		00000002	Communication was completed.			
4								

At end of communication, communication end message is displayed on "ErrorLog" sheet.

CHAPTER 11 1 SHOT COMMUNICATION

This chapter explains 1 shot communication function that makes communication with the selected cell area only once at any timing.
The 1 Shot Communication screen is used to set a cell area and execute 1 shot communication for the cell area.

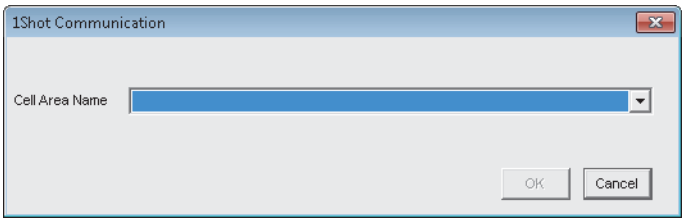
Point

- 1 shot communication function ignores the device trigger and handshake settings set to the cell area, and performs communication only once.
- 1 shot communication function cannot work with the alarm summary function.

Screen display

- **[MX Sheet] ⇨ [1 Shot Communication] ( )**
- **Click the 1 shot communication button. (☞ Page 139, Section 14.3)**

Screen display



Display contents

Item	Description
Cell Area Name	Select the cell area for 1 shot communication. Only the cell area name set in the currently selected Excel spreadsheet is displayed in "Cell Area Name".
OK button	Execute 1 shot communication. The button can be clicked after the cell area is selected in "Cell Area Name".

Remark

- When 1 Shot Communication screen is activated after selecting the cell area set on the Excel spreadsheet with the mouse, the cell area name of the selected cell area is displayed on "Cell Area Name".
- Setting the cell area name in "Cell Area Name" displays the cell area on the Excel spreadsheet.

Memo

CHAPTER 12 CELL EDITING

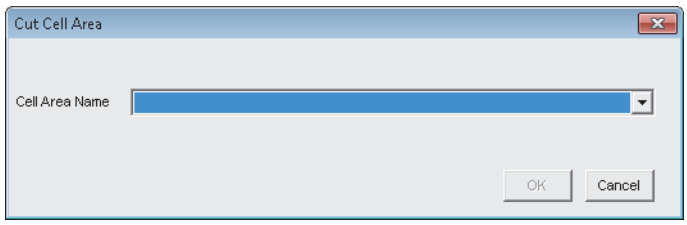
This chapter explains how to edit the cell area set using MX Sheet.

12.1 Cutting Cell Area

This section explains the procedure to delete the settings of the selected cell area and paste them to another cell area.

Screen display

[MX Sheet] ⇨ [Cut Cell Area] ( )



Display contents

Item	Description
Cell Area Name	Select the cell area name to be cut.
OK button	Cut the cell area. The button can be clicked after the cell area name is selected in "Cell Area Name".

Remark

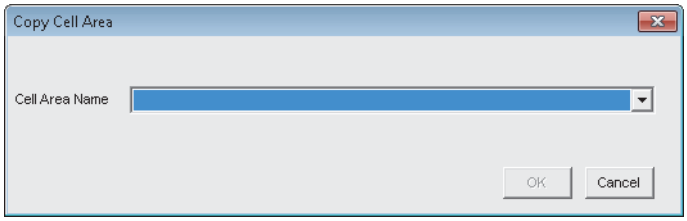
For pasting the cell area, refer to the following section.
☞ Page 130, Section 12.3

12.2 Copying Cell Area

This section explains the procedure to copy the settings of the selected cell area to another cell area.

Screen display

[MX Sheet] ⇨ [Copy Cell Area] ( )



Display contents

Item	Description
Cell Area Name	Select the cell area name to be copied.
OK button	Copy the cell area. The button can be clicked after the cell area name is selected in "Cell Area Name".

Remark

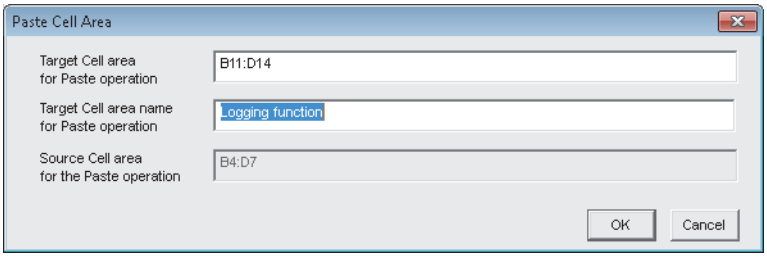
For pasting the cell area, refer to the following section.
☞ Page 130, Section 12.3

12.3 Pasting Cell Area

This section explains the procedure to paste the cut or copied cell area to another cell area.

Screen display

[MX Sheet] ⇨ [Paste Cell Area] ( )



Display contents

Item	Description
Target Cell area for Paste operation	Enter the cell area to be pasted.
Target Cell area name for Paste operation	Enter the cell area name to be pasted.*1
Source Cell area for the Paste operation	The cut or copied cell area is displayed.
OK button	Paste the cell area. The button can be clicked after setting "Target Cell area for Paste operation" and "Target Cell area name for Paste operation".

*1 : When pasting the cell area after copying it, enter into "Target Cell area name for Paste Operation" the cell area name that differs from the copied cell area name.

Remark

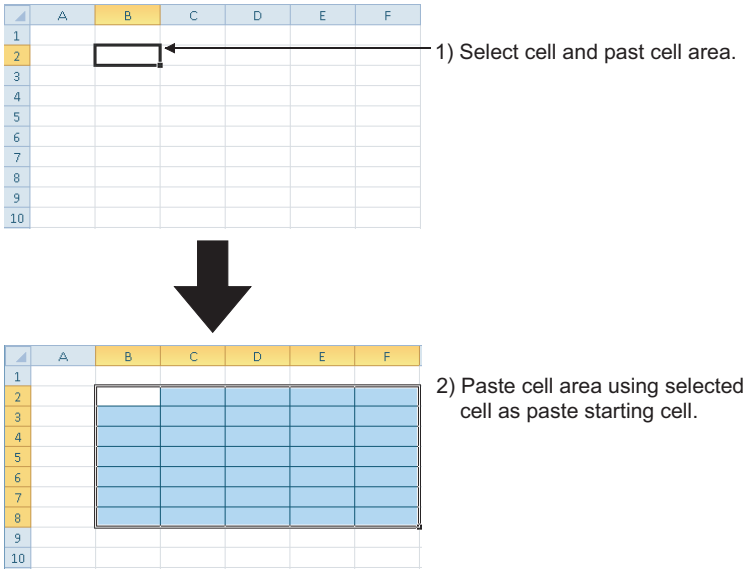
The cell area cannot be pasted unless the cell area is selected by cutting or copying it.

(1) Considerations for pasting the cell

Consider the following when pasting a cell area.

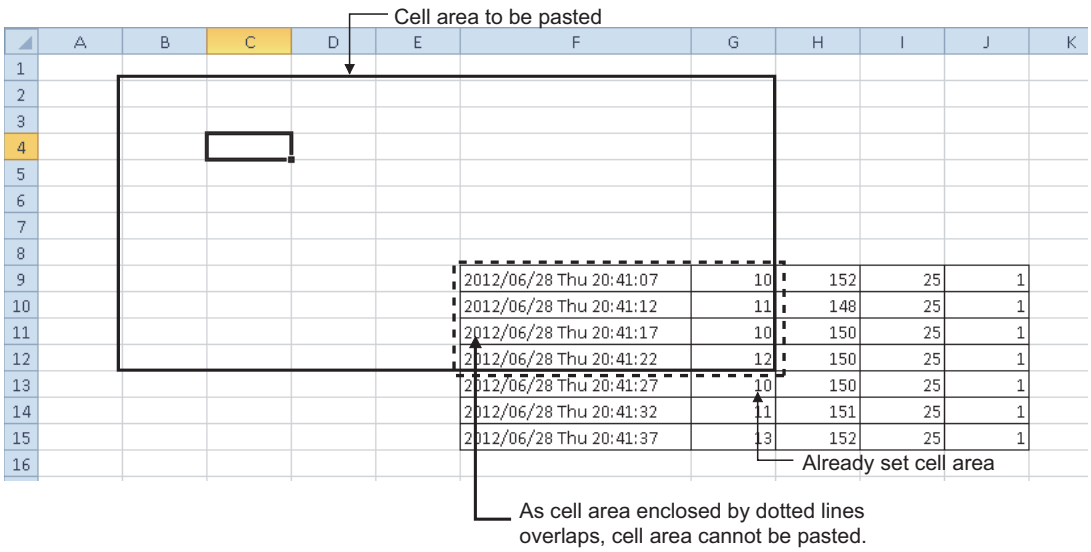
(a) Paste starting cell in cell area

The paste starting cell in the cell area is the cell selected on the Excel spreadsheet.



(b) Overlap of cell areas

If the paste area overlaps the other cell area that is already set, the selected cell cannot be pasted. Paste the cell after checking the other cell area.



Point

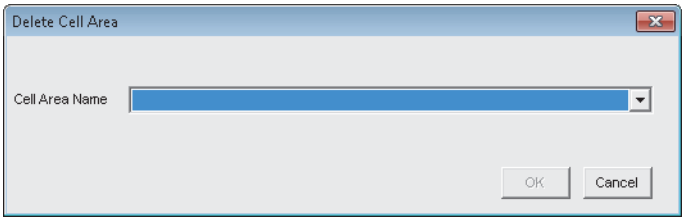
The cell can be pasted when both of the following conditions are met: the area of "Already set cell area" and "Cell area to be pasted" are completely matched, and "Monitor" and "Write" are set to "Use" on each Cell Settings screen.

12.4 Deleting Cell Area

This section explains the procedure to delete the settings of the cell area.

Screen display

[MX Sheet] ⇨ [Delete Cell Area] ( )



Display contents

Item	Description
Cell Area Name	Select the cell area name to be deleted.
OK button	Delete the cell area. The button can be clicked after the cell area name is selected in "Cell Area Name".

CHAPTER 13 CHANGING SHEET NAME

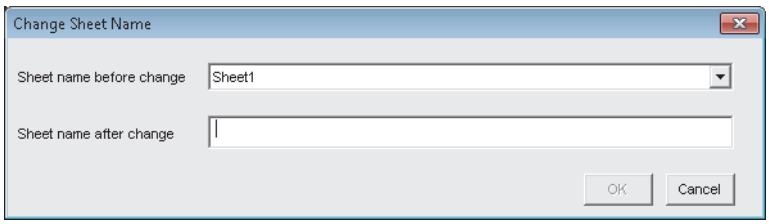
This chapter explains the changing the sheet name of the Excel sheet where MX Sheet is set.
In the Change Sheet Name screen, select an Excel sheet and set a new name for the sheet.

Point

Always change the sheet name of the Excel sheet, where MX Sheet is set, from the Change Sheet Name screen.
If the sheet name is changed from Excel directly or from a VBA program, MX Sheet is not operate normally

Screen display

[MX Sheet] ⇨ [Change Sheet Name] ( )



Display contents

Item	Description
Sheet name before change	Select the Excel spreadsheet of which sheet name to be changed.
Sheet name after change	Enter a new sheet name.
OK button	Change the sheet name. The button can be clicked after the "Sheet name before change" and "Sheet name after change" are selected.

(1) Changing the sheet name

If the sheet name of the Excel spreadsheet, where MX Sheet is set, is changed from Excel directly or from a VBA program, return the sheet name to the old one from Excel.
If the sheet name is changed from the VBA program, delete the program part that changes the sheet name.

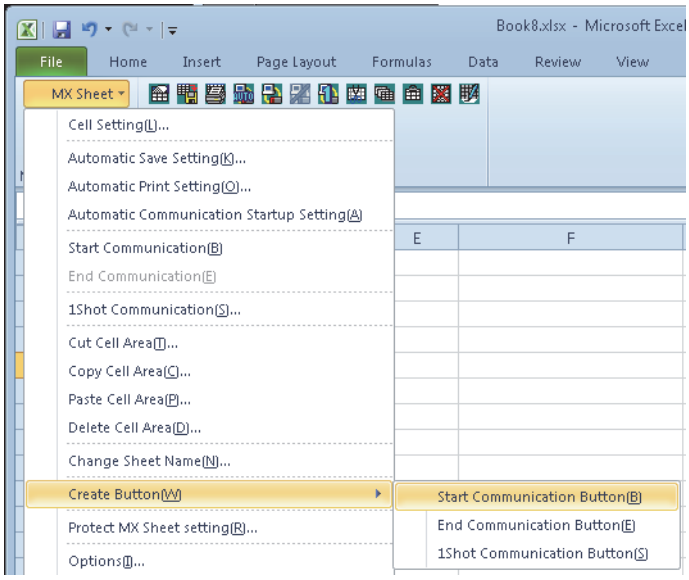
CHAPTER 14 CREATING BUTTONS

The following explains the Start Communication, End Communication and 1 Shot Communication execution button creation procedures and the property setting.
By merely clicking the created button, Start Communication, End Communication or 1 Shot Communication operation can be performed and easily operated.

14.1 Start Communication Button

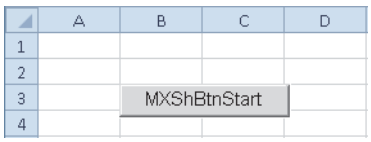
Create the button for execution of Start Communication and paste it to an Excel spreadsheet.

(1) Button pasting method



1. **Specify the cell on the Excel spreadsheet where the button is placed, and select the <<Add-Ins>> tab ⇨ [MX Sheet] ⇨ [Create Button] ⇨ [Start Communication Button] on the menu bar*1.**

*1 : When using Microsoft® Excel® 2003, select [MX Sheet] ⇨ [Create Button] ⇨ [Start Communication Button] on the menu bar.



2. **The button is placed in the specified cell position.**

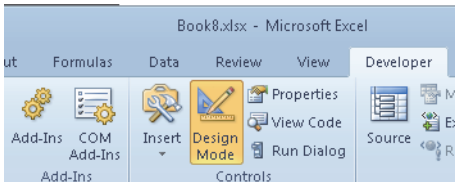
Point

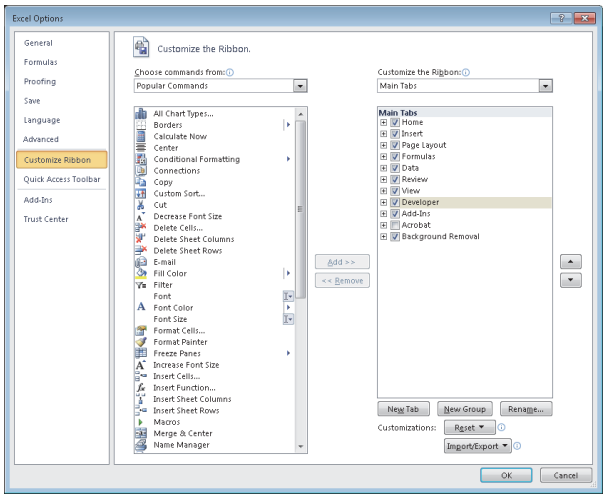
The following settings about the placed button can be changed in the property setting.

- Change the display characters on the button (font, size, etc.)
- Change if the start message is displayed/hidden displayed when executing the button

For the details of the property setting, refer to Page 135, (2) in this section and Page 136, (3) in this section.

(2) Property page starting method



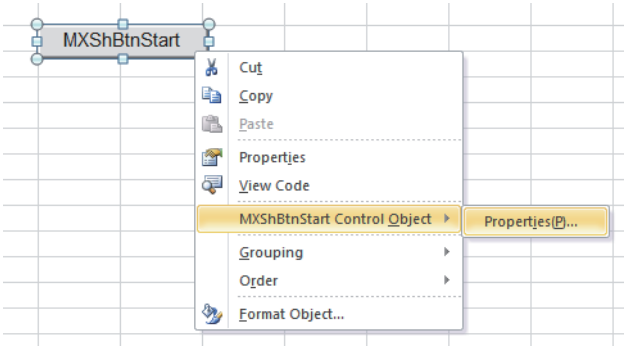


1. Select the [Design Mode] in the <<Developer>> tab to enter the design mode.

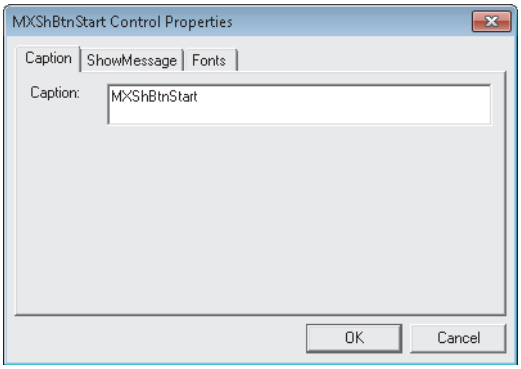
In order to display the <<Developer>> tab, select the <<File>> tab ⇨ [Options][*1].
Select "Customize Ribbon" and check the "Developer" check box, and then click the OK button.

<When using Microsoft® Excel® 2003>
Check the "Control Toolbox" on the <<Toolbars>> tab in the screen that is displayed by selecting [Tools] ⇨ [Customize] in the Excel menu.

<When using Microsoft® Excel® 2007>
Select the Office button ⇨ Excel Options button.
Select "Show Developer tab in the Ribbon" in the Excel Options screen.



2. Select [MXShBtnStart Control Object] ⇨ [Properties] in the menu displayed by right-clicking the created button.



3. Start the property page.
For the property settings, refer to Page 136, (3) in this section.

Point

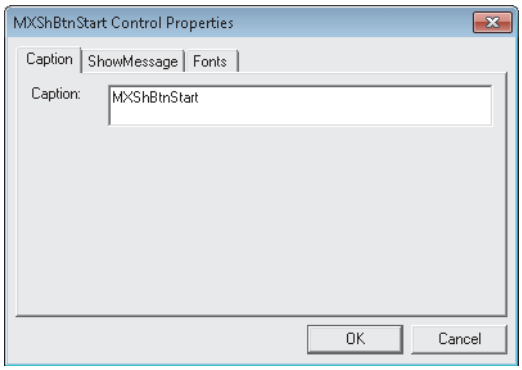
When the property setting is completed, select the [Design Mode] again to exit from the design mode.

(3) Property setting

Set the "Caption", "Show Message" and "Font properties".

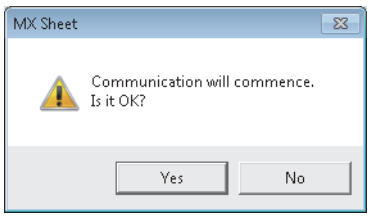
(a) <<Caption>> tab

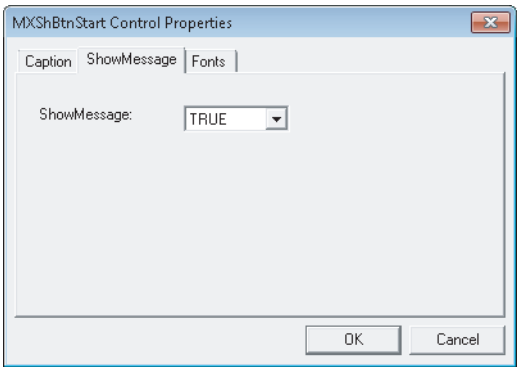
Edit the "Caption" (display characters on the button) of the button.



(b) <<Show Message>> tab

Set if the following message is displayed or not when clicking the start communication button.

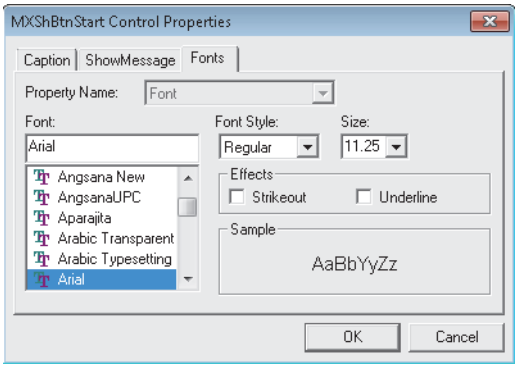




TRUE : Display
FALSE : Not display

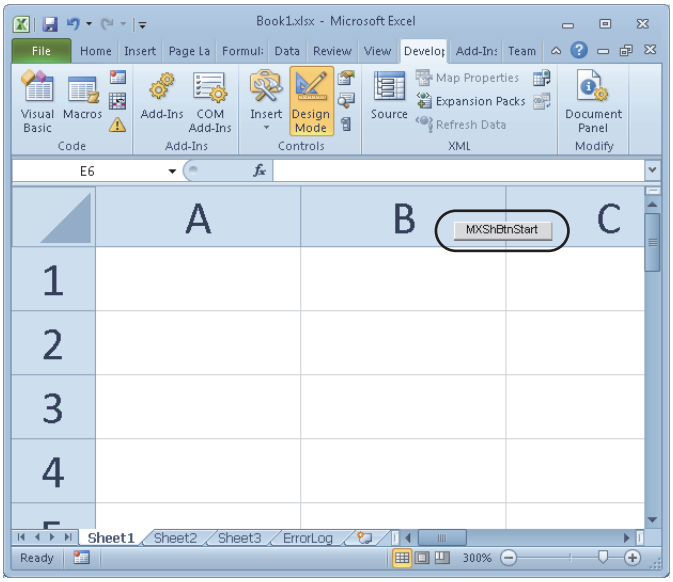
(c) <<Font>> tab

Set the type and size of the caption font.



Point

- Save the Excel book when the button is created or any property is changed.
- Do not execute [Grouping] ⇨ [Ungroup] from the right-click menu of the button.
  Executing Ungroup disables the button from functioning.
- If the font size is set on the <<Font>> Tab of the property, a value (error) different from the set font size may be displayed when the <<Font>> Tab is displayed next time.
  <Example>
  When the font size is set to 8, 8.25 is displayed next time.
- If [Split], [Freeze Panes] or [New Window] in the [Window] menu is executed for the Excel spreadsheet where buttons is placed, correct operation may not be performed, e.g. the buttons remain displayed or the buttons cannot be clicked.
- If the zoom of Excel is set to a large magnification, the button may be displayed above the row/column number. If it occurs, click the button. The button is then move to the correct position.



- If a button is created in design mode and then the mode is ended and set repeatedly, the button may not be clicked.
  In this case, minimize and restore the Excel book window. This enables the button to be clicked.
- When moving a button or changing button size after creating it, the button is not checked for its position.
- If the button position exceeds the supported range (256 columns × 65536 rows) when Excel from 97 to 2003 version is saved in book format, any of the following occurs depending on the button size, button position, height of the row and/or cell width.
  - When saved Book is reopened, the button is reduced or moved so that it is fit within the supported range.
  - The button is deleted when saved Book is reopened.
  - The Compatibility Checker screen is displayed on the Excel at saving the Book.

14.2 End Communication Button

Create the button for execution of End Communication and paste it to an Excel spreadsheet.

(1) Button pasting method

Same as the Start Communication Button.

Select in the menu.

☞ Page 134, Section 14.1 (1)

Operating procedure

[MX Sheet] ⇨ [Create Button] ⇨ [End Communication Button]

(2) Property page starting method

Same as the Start Communication Button.

☞ Page 135, Section 14.1 (2)

Operating procedure

[MXShBtnEnd Control Object] ⇨ [Properties]

(3) Property setting

Set the Caption and Font properties.

☞ Page 136, Section 14.1 (3)

14.3 1 Shot Communication Button

Create the button for execution of 1 Shot Communication and paste it to an Excel spreadsheet.

(1) Button pasting method

Same as the Start Communication Button.

☞ Page 134, Section 14.1 (1)

Operating procedure

[MX Sheet] ⇨ [Create Button] ⇨ [1 Shot Communication Button]

(2) Property page starting method

Same as the Start Communication Button.

☞ Page 135, Section 14.1 (2)

Operating procedure

[MXShBtnEnd Control Object] ⇨ [Properties]

(3) Property setting

Set the Caption, CellAreaName and Font properties.

Same as the Start Communication Button.

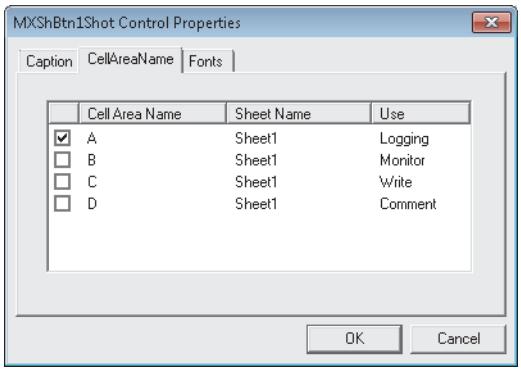
☞ Page 136, Section 14.1 (3)

(a) <<CellAreaName>> Tab

The Cell Area Name list displays all Cell Area Names of Logging, Monitor, Write and Comment in the Excel book.

Select the check box for the Cell Area Name that is the target of 1 Shot Communication.

Up to 10 Cell Area Names can be selected.



CHAPTER 15 PROTECTING/UNPROTECTING MX Sheet SETTING

The following explains Protect MX Sheet setting and Unprotect MX Sheet setting by a password.

15.1 Protecting MX Sheet Setting

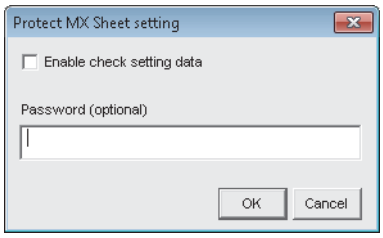
Protect the MX Sheet setting by a password so that the setting content cannot be changed.
The setting content cannot be edited until the MX Sheet setting is unprotected.

Point

When Protect MX Sheet setting is set, the [Unprotect MX Sheet setting] is displayed instead of the [Protect MX Sheet setting].

Screen display

[MX Sheet]] ⇨ [Protect MX Sheet setting]



Display contents

Item	Description	Reference
Enable check setting data	The menu that can be selected when Protect MX Sheet setting is set changes depending on if a check mark exists.	Page 141, (1) in this section
Password (optional)	Enter the password for protecting the setting contents. The password may also be registered as a blank.	-
OK button	The Confirm Password screen is displayed. When the password is blank, however, the Confirm Password screen is not displayed and the MX Sheet setting is protected.	Page 142, (2) in this section

(1) "Enable check setting data"

Depending on whether "the item is cleared" (setting content cannot be confirmed) or "Selected" (setting content can be confirmed), the menu that can be selected when Protect MX Sheet setting is set changes as shown in the following table.

○:Can be selected
×: Cannot be selected

MX Sheet menu	Cleared	Selected
Cell Settings	×	○*1
Automatic Save Setting	×	○*1
Automatic Print Setting	×	○*1
Automatic Communication Startup Setting	×	×
Communication Start	○	○
Communication End	○	○
1 Shot Communication	○	○
Cutting the Cell Area	×	×
Copying the Cell Area	×	×
Pasting the Cell Area	×	×
Deleting the Cell Area	×	×
Changing the Sheet Name	×	×
Create Button	×	×
Unprotect MX Sheet setting	○	○
Options	×	×
Setting data export	×	×
Version Info.	○	○

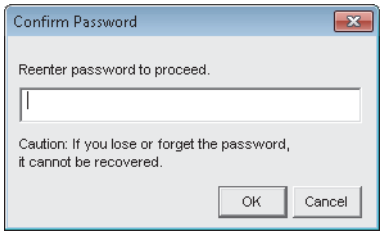
*1 : [Read only] is displayed after the title of the following screen related to the cell settings, automatic save setting and automatic print setting.
The setting content can be confirmed but cannot be changed.

- Cell settings
- Automatic save list
- Automatic save
- Automatic print list
- Automatic print

(2) OK button

The Confirm Password screen is displayed.

Enter the password entered in the Protect MX Sheet setting screen again.



Display contents

Item	Description
OK button	Close the Confirm Password screen and protect the MX Sheet settings.

Point

If the MX Sheet setting is protected, the properties of the start communication button, end communication button, and the 1 shot communication button can be edited.

15.2 Unprotecting MX Sheet Setting

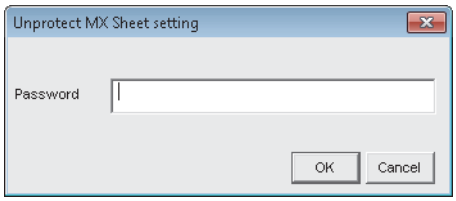
The MX Sheet setting is unprotected, and the setting content can be changed.

Point

- When Protect MX Sheet setting is not set, the [Unprotect MX Sheet setting] menu is not displayed.
- When the password is blank, the Unprotect MX Sheet setting screen is not displayed and the MX Sheet setting is unprotected.

Screen display

[MX Sheet]] ⇨ [Unprotect MX Sheet setting]



Display contents

Item	Description
Password	Enter the password set in the Protect MX Sheet setting screen.
OK button	The Unprotect MX Sheet setting screen is closed, and the MX Sheet setting is unprotected. The MX Sheet menu selection and setting screen editing restriction are canceled.

CHAPTER 16 OPTIONS

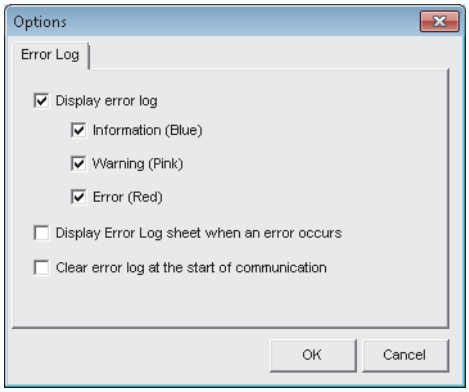
Set option setting for specifying such as an Error log sheet output format.

16.1 Setting Error Logs

Set the Error log sheet output format on the <<Error log>> tab on the Options screen.
For details of the Error log sheet, refer to the following chapter.
☞ Page 150, CHAPTER 19

Screen display

[MX Sheet] ⇨ [Options]



Display contents

Item		Description
Display error log		Set whether the information/warning/error that occurred during the execution of communication is displayed on the Error log sheet or not. Selected: Displayed / No selected: Not displayed
	Information (Blue) *1	Set whether the information message (blue) during the execution of communication is displayed on the Error log sheet or not. Selected: Displayed / No selected: Not displayed
	Warning (Pink)*1	Set whether the warning message (pink) during the execution of communication is displayed on the Error log sheet or not. Selected: Displayed / No selected: Not displayed
	Error (Red)*1	Set whether the error message (red) during the execution of communication is displayed on the Error log sheet or not. Selected: Displayed / No selected: Not displayed
Display Error Log sheet when an error occurs		Set whether the display is switched to the Error log sheet or not if a warning or error occurs during the execution of communication. Selected: Display is switched to the Error log sheet. No selected: Display is not switched to the Error log sheet.
Clear error log at the start of communication		Set whether the Error log is cleared or not at the start of communication. Selected: cleared / No selected: Not cleared

*1 : Setting can be set only when the "Display error log" check box is selected.

Memo

CHAPTER 17 SETTING DATA EXPORT

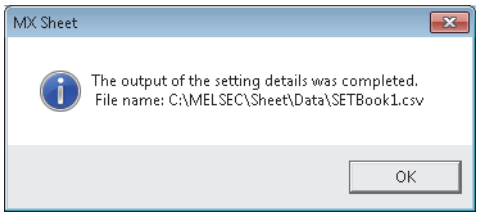
This chapter explains the procedure to output the settings of MX Sheet to a CSV file.

(1) "Setting Data Export" procedure

Operating procedure

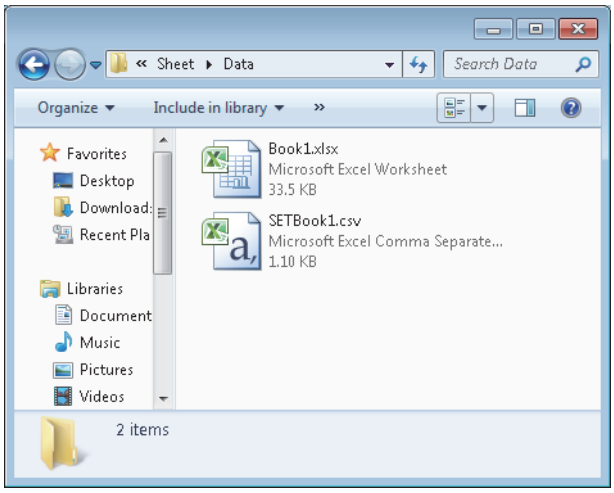
[MX Sheet] ⇨ [Setting Data Export]

The details of MX Sheet set in the Excel book are output to the CSV file.
After setting data export, the following message is displayed.



(2) Save destination of CSV file

After setting data export, MX Sheet saves the CSV file in the folder where the original Excel book is saved.



(3) File name of CSV file

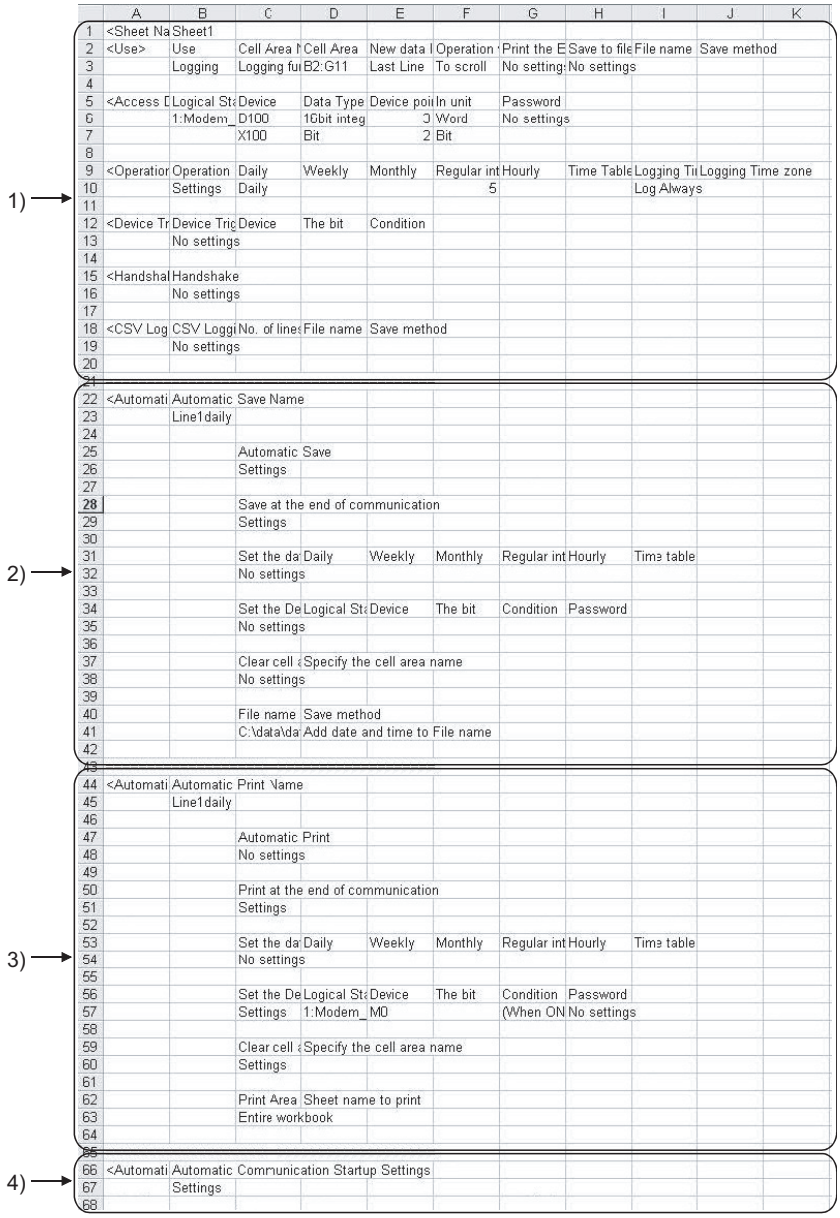
The following shows the file name of the CSV file.

SET*******.csv

Excel book name that executed setting data export

(4) Saved content of CSV file

The following shows the content of the CSV file saved by the setting data export.



	A	B	C	D	E	F	G	H	I	J	K
1	<Sheet Na	Sheet1									
2	<Use>	Use	Cell Area I	Cell Area	New data I	Operation	Print the E	Save to file	File name	Save method	
3		Logging	Logging fu	B2:G11	Last Line	To scroll	No setting	No settings			
4											
5	<Access D	Logical St	Device	Data Type	Device poi	In unit	Password				
6		1:Modem_	D100	16bit integ		3 Word	No settings				
7			X100	Bit		2 Bit					
8											
9	<Operatior	Operation	Daily	Weekly	Monthly	Regular int	Hourly	Time Table	Logging Ti	Logging Time zone	
10		Settings	Daily			5			Log Always		
11											
12	<Device Tr	Device Trig	Device	The bit	Condition						
13		No settings									
14											
15	<Handshal	Handshake									
16		No settings									
17											
18	<CSV Log	CSV Loggi	No. of line	File name	Save method						
19		No settings									
20											
21											
22	<Automati	Automatic	Save Name								
23		Line1daily									
24											
25			Automatic	Save							
26			Settings								
27											
28			Save at the end of communication								
29			Settings								
30											
31			Set the da	Daily	Weekly	Monthly	Regular int	Hourly	Time table		
32			No settings								
33											
34			Set the De	Logical St	Device	The bit	Condition	Password			
35			No settings								
36											
37			Clear cell	Specify the cell area name							
38			No settings								
39											
40			File name	Save method							
41			C:\data\da	Add date and time to	File name						
42											
43											
44	<Automati	Automatic	Print Name								
45		Line1daily									
46											
47			Automatic	Print							
48			No settings								
49											
50			Print at the end of communication								
51			Settings								
52											
53			Set the da	Daily	Weekly	Monthly	Regular int	Hourly	Time table		
54			No settings								
55											
56			Set the De	Logical St	Device	The bit	Condition	Password			
57			Settings	1:Modem_	M0		(When ON	No settings			
58											
59			Clear cell	Specify the cell area name							
60			Settings								
61											
62			Print Area	Sheet name to print							
63			Entire workbook								
64											
65											
66	<Automati	Automatic	Communication Startup Settings								
67		Settings									
68											

1) → row 10
2) → row 31
3) → row 54
4) → row 66

Display contents

Item	Description
1) (Cell Setting)	The settings of the sheet name and cell setting are displayed.
2) (Automatic Save)	The settings of automatic save are displayed.
3) (Automatic Print)	The settings of automatic print are displayed.
4) (Automatic Communication Startup)	The settings of automatic communication startup are displayed.

CHAPTER 18 SAMPLE PROGRAMS

This chapter explains the sample programs registered at MX Sheet installation.

(1) Sample programs

(a) Sample programs

The sample programs are attached for reference when creating user programs.
Use them on customer's own responsibility.

(b) Logical station number

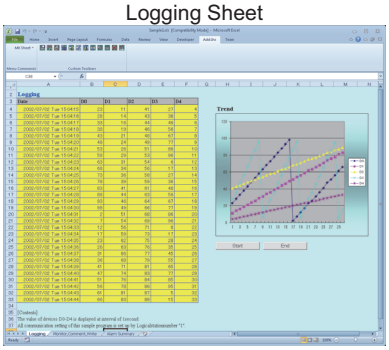
"1" is assigned to all sample programs as logical station number by default.
To use the sample programs, set the settings for the logical station number "1" or assign other logical station number and set the setting for the number.

(2) Sample program list

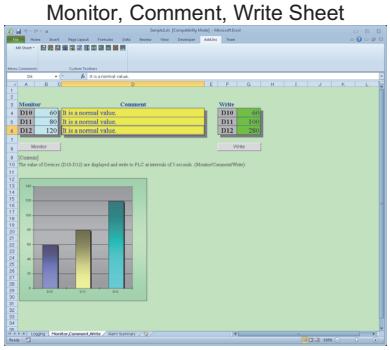
The following table shows the sample programs (Sample1.xls, Sample2.xls) that are registered by selecting install destination folder (C:\MELSEC)⇨ [Sheet] ⇨ [Sample] at MX Sheet installation.

Sample Program		Description
Excel book name	Excel spreadsheet name	
Sample1.xls	Logging	Logging is performed for D0 to D4 at 1 second intervals.
	Monitor, Comment, Write	Monitor, display their assigned comments and write the device data. D10 to D12 at intervals of 5 seconds.
	Alarm Summary	Alarm summary is performed using M0 to M4.
Sample2.xls	Monitor, Write (Conditioning)	Monitor and write the device data using device trigger.
	Logging (Conditioning)	Logging is performed using handshake.
	Automatic Save	Save the data on the Excel spreadsheet automatically when M20 turns on. (Automatic save is described in Excel spreadsheet.)

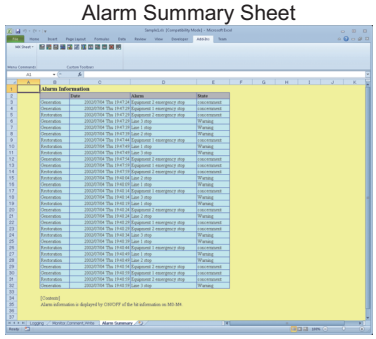
Logging Sheet



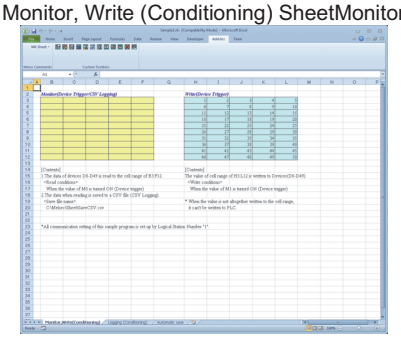
Monitor, Comment, Write Sheet



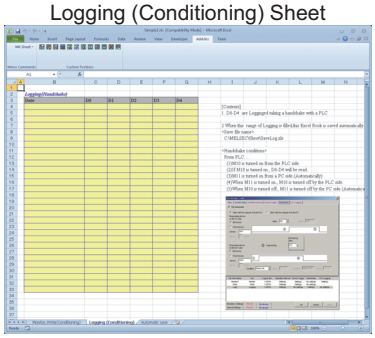
Alarm Summary Sheet



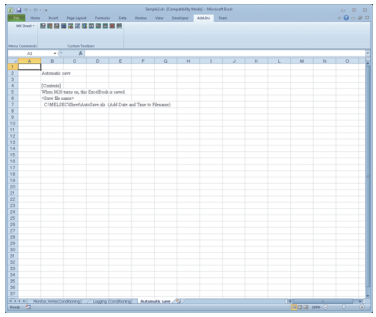
Monitor, Write (Conditioning) SheetMonitor



Logging (Conditioning) Sheet



Automatic Save Sheet



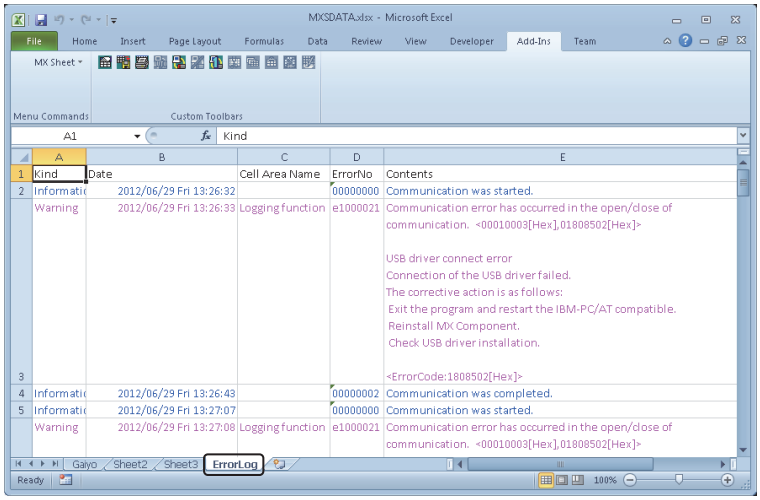
Memo

CHAPTER 19 ERROR LOG SHEET

This chapter explains the ErrorLog sheet that displays the communication status of MX Sheet.
The communication status, error information and corrective action of MX Sheet are displayed on the ErrorLog sheet.
Troubleshooting can be performed by confirming the corrective action displayed on the ErrorLog sheet.

Screen display

- **Select "ErrorLog" sheet in an Excel book.**



Display contents

Item	Description	Reference
Kind	The type of the communication status is displayed.	Page 151, (2) in this section
Date	The date and time when the communication status is changed are displayed. The displayed time is the date and time of the personal computer where MX Sheet is operating.	Page 151, (3) in this section
Cell Area Name	The cell area name where the communication status is changed is displayed.	Page 151, (4) in this section
Error No.	The error number of the error that has occurred is displayed.	Page 151, (5) in this section
Contents	The details of the communication status is displayed. The error definition, error code and corrective action are displayed when an error occurs.	Page 151, (6) in this section

(1) ErrorLog sheet

The following table indicates the ErrorLog sheet specifications.

Item	Description
Maximum number of display lines	2000 lines (fixed)
New data location	The last line has the latest data.
Operating when cell is full	Overwritten in due order, starting with the first line.

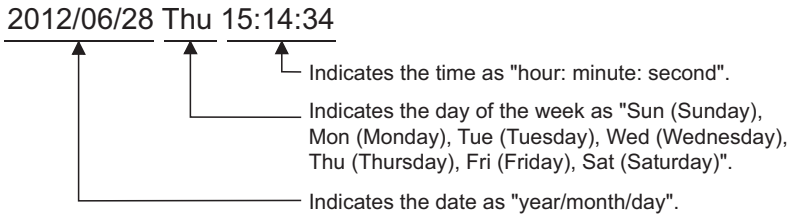
(2) "Kind"

The following table shows the communication status displayed in "Kind".

Communication Status	Description
Information	Displayed when the communication with the programmable controller CPU starts and ends during 1 shot communication.
Error	Displayed when a fatal error occurred and the function of the cell area stopped.
Warning	Displayed when communication error or collection delay occurs.

(3) "Date"

"Date" displays the date and time of the personal computer at ErrorLog sheet registration.


2012/06/28 Thu 15:14:34
Indicates the time as "hour: minute: second".
Indicates the day of the week as "Sun (Sunday), Mon (Monday), Tue (Tuesday), Wed (Wednesday), Thu (Thursday), Fri (Friday), Sat (Saturday)".
Indicates the date as "year/month/day".

(4) "Cell Area Name"

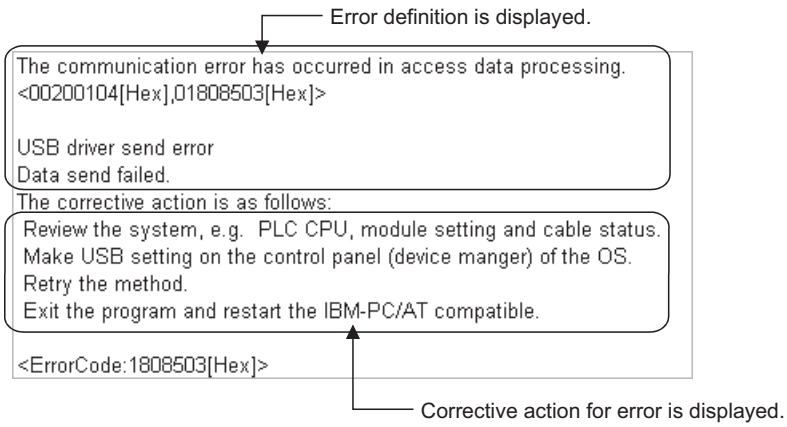
The cell area name registered to the ErrorLog sheet is displayed.
It is not displayed when the communication starts and ends.

(5) "Error No"

The error number is displayed.
Specify the error number when inquiring about errors.
Contact us with the error number.

(6) "Contents"

The data displayed in "Contents" are shown below.


Error definition is displayed.
The communication error has occurred in access data processing.
<00200104[Hex],01808503[Hex]>
USB driver send error
Data send failed.
The corrective action is as follows:
Review the system, e.g. PLC CPU, module setting and cable status.
Make USB setting on the control panel (device manger) of the OS.
Retry the method.
Exit the program and restart the IBM-PC/AT compatible.
<ErrorCode:1808503[Hex]>
Corrective action for error is displayed.

Point

- If the same error occurs twice or more successively in the same cell area, only the error information of the first error is registered to the ErrorLog sheet. (The error information of the second error or later is not displayed.)
- Set the setting related to the Error Log sheet output format in the Options screen (☞ Page 144, Section 16.1).

APPENDIX

Appendix 1 Version Confirmation

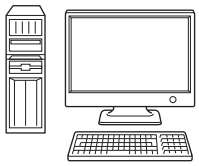
This section explains how to confirm the MX Sheet version.
Confirm the MX Sheet version in the Product information about MX Sheet screen.

Screen display

[MX Sheet]⇨[Version Info.]

Appendix 2 Processing Speed of MX Sheet

This section explains the performance values and the scroll processing performance of Excel when the monitor and logging functions is executed using the personal computer of the following performance.
The performance values indicate the numbers of device points where no collection delay occurs when only one cell area is set to the Excel book and the device data of D device are collected by the monitor or logging function. (If multiple cell areas is set, reduce the number of device points per cell to maintain the same performance.)
The actual performance values vary depending on the performance or similar of the personal computer.
Use the performance values explained in this section as reference values.



Operating system : Windows 7® Professional SP1(64bit)
CPU : Intel Core i7-2790(3.60GHz)
Memory : 8.00GB
Excel : Microsoft® Office® Professional Plus 2010(32bit)
Cell area : Only one

<Setting example 1>

The setting example 1 shows the case where only one access data is set.

	Device	Data Type	Value	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	16bit integer	DEC		1			Word
2								
3								

<Setting example 2>

The setting example 2 shows the case where two or more access data are set.

	Device	Data Type	Value	No. of characters	Zoom	No. of cells	Dev. points	In unit
1	D0	16bit integer	DEC		1			Word
2	D500	16bit integer	DEC		1			Word
3								

(1) Performance values for Ethernet communication

The following table shows the performance values when the monitor and logging functions are executed using Ethernet communication.

CPU type: R120CPU
Connected module: RJ71E71

Function	Operation Interval	Number of Device Points*1	
		Setting example 1	Setting example 2
Monitor function	0.005s(5ms)	Collection delay occurs	Collection delay occurs
	0.05s(50ms)	450points	50points
	0.5s(500ms)	9500points	3000points
	1s	18000points	7500points
	5s	18000points	18000points
Logging function	0.005s(5ms)	4000points	4points
	0.05s(50ms)	5080points	750points
	0.5s(500ms)	5080points	5080points
	1s	5080points	5080points
	5s	5080points	5080points

*1 : This number of device points applies to the case the data type is set to a character string.

(2) Performance values for USB communication

The following table shows the performance values when the monitor and logging functions are executed using USB communication.

CPU type: R120CPU

Function	Operation Interval	Number of Device Points*1	
		Setting example 1	Setting example 2
Monitor function	0.005s(5ms)	4000points	100points
	0.05s(50ms)	18000points	1000points
	0.5s(500ms)	18000points	6000points
	1s	18000points	14000points
	5s	18000points	18000points
Logging function	0.005s(5ms)	4000points	4points
	0.05s(50ms)	5080points	750points
	0.5s(500ms)	5080points	5080points
	1s	5080points	5080points
	5s	5080points	5080points

*1 : This number of device points applies to the case the data type is set to a character string.

(3) Scroll processing performance of Excel

The following table shows the times required by Excel for scroll processing when the logging function is used. The following times applies to the case only Excel is started on the personal computer.

Scroll Range	Time Required for Scroll Processing
10 columns × 1000 rows	0.95s
10 columns × 2000 rows	1.1s
10 columns × 65536 rows	6.1s
256 columns × 1000 rows	4.5s
256 columns × 2000 rows	6.8s
256 columns × 65536 rows	20min and 30s

Measurement environment: Pentium III 800MHz, 256MB, Windows XP® Professional, Microsoft® Excel® 2007

(4) File size at save and required time

The following table shows references for file size at save and time taken for saving a file depending on Excel version (Book format).

In Microsoft® Excel® 2007 or later (especially in standard format), file size may increase or time taken for saving a file may lengthen.

Excel version	Cell range					
	12 columns 30 rows		128 columns 32768 rows		255 columns 65535 rows	
	Size (MB)	Time (second)	Size (MB)	Time (second)	Size (MB)	Time (second)
Microsoft® Excel® 2007 (standard format)	0.034	Less than 1	11.1	7	42.5	23
Microsoft® Excel® 2007 (binary format)	0.022	Less than 1	0.45	3	14.3	11
Microsoft® Excel® 2010 (standard format)	0.035	Less than 1	11.1	4	42.5	14
Microsoft® Excel® 2010 (binary format)	0.022	Less than 1	0.46	2	14.3	8

Measurement condition: 1 type is set for cell settings (application: logging)

Measurement environment: Intel® Core™2 Duo E8400 3.0GHz, 1GB MM, Windows XP® Professional SP3

Appendix 3 Processing MX Sheet

This section explains the processing of MX Sheet.

Appendix 3.1 Collection delay and data dropout

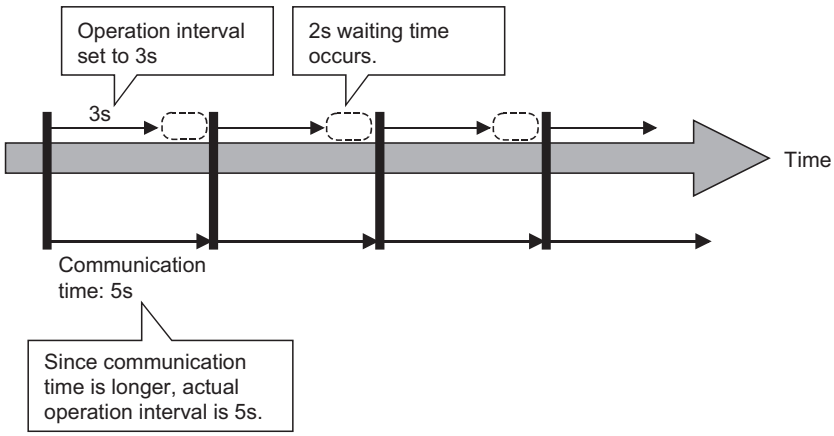
On MX Sheet, collection delay, data dropout or similar problem may occur depending on the communication time with the programmable controller CPU and the collection timing of device data.
The following explains the collection delay and data dropout.

(1) Collection delay

Device data collection delay occurs depending on the communication time with the programmable controller CPU and the corresponding processing time.
Collection delay occurs only when "Operation time" is set to "Regular interval".
When a collection delay occurs, it is registered to the ErrorLog sheet as error information.
When a collection delay occurs, check the ErrorLog sheet.
The following explains the cases where a collection delay occurs.

(a) When the actual communication time is longer than the specified operation interval

When the communication time with the programmable controller CPU is longer than the operation interval of MX Sheet, a device data collection delay occurs.
<Example>
"Operation time" is set to "Regular interval (3s)" but the communication time with the programmable controller CPU is 5s

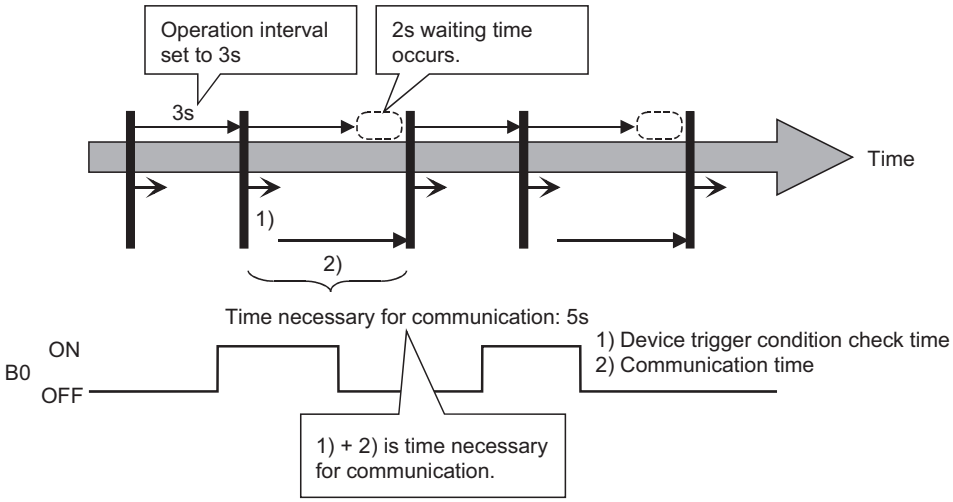

Operation interval set to 3s
2s waiting time occurs.
3s
Time
Communication time: 5s
Since communication time is longer, actual operation interval is 5s.

(b) Collection delay when device trigger function is used

When the sum of the device trigger condition check time and the communication time with programmable controller CPU is longer than the operation interval of MX Sheet, a collection delay occurs during the next device trigger condition check.

<Example>

When "B0" = "When ON" is set as the device trigger condition (operation interval is 3s)

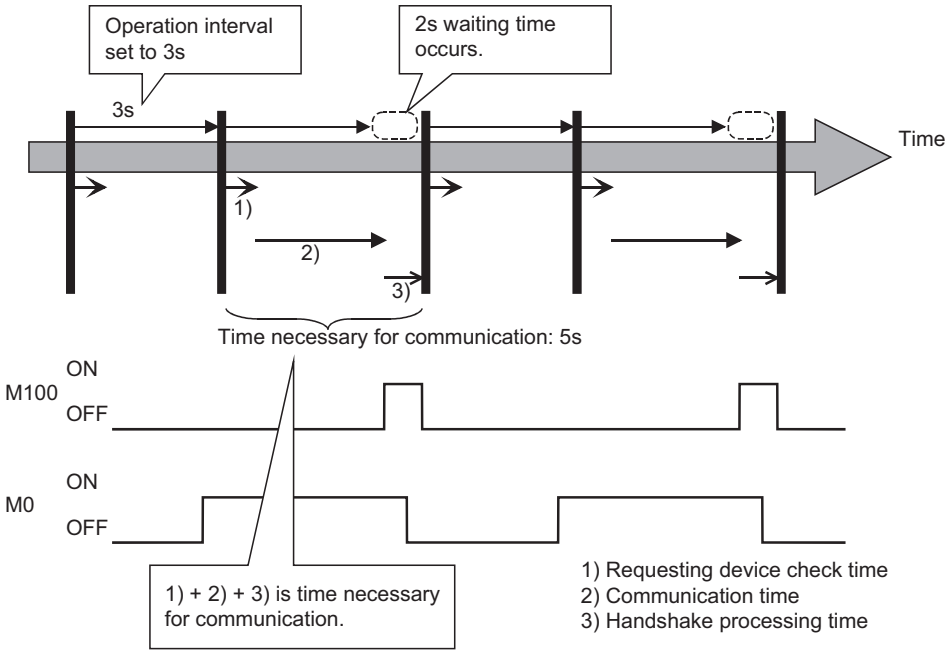


(c) Collection delay when handshake function is used

When the sum of the requesting device check time, the communication time with programmable controller CPU and the handshake processing time is longer than the operation interval of MX Sheet, a collection delay occurs during the next requesting device check.

<Example>

When the programmable controller CPU side requesting device is set to "M0" and the PC side responding device to "M100" (operation interval is 3s)



(2) Data dropout

The data to be collected may dropout depending on the communication time with the programmable controller CPU and the collection timing of device data.

The following explains the cases where a data dropout occurs.

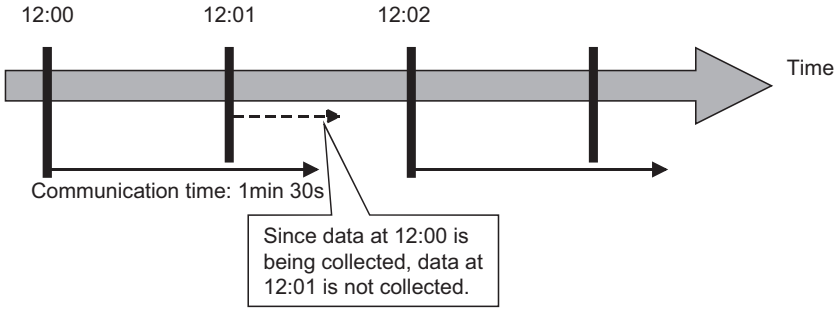
(a) When the actual communication time is longer than the specified operation interval

When the communication time with the programmable controller CPU is longer than the operation interval, the data to be collected dropouts.

If a data dropout has occurred, increase the operation interval setting of MX Sheet.

<Example>

When "Operation time" is set to "Hourly (0min, 1min, 2min)" but the communication time with the programmable controller CPU is longer than 1min If previous data collection is still being executed when it is reached the operation time as shown below, a data dropout occurs on MX Sheet.



(b) Data dropout when device trigger function is used

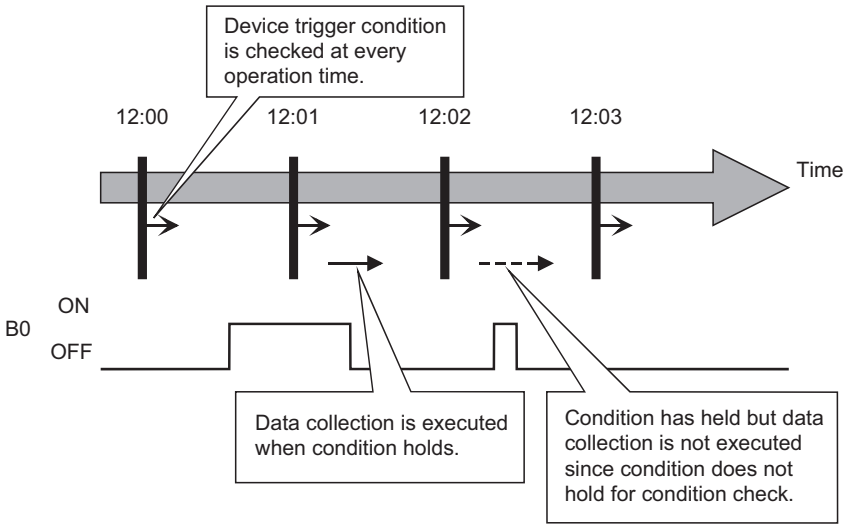
condition cannot be checked and the data to be collected dropouts.

If a data dropout occurs during use of the device trigger, decrease the operation interval setting of MX Sheet.

<Example>

When "B0" = "When ON" is set as the device trigger condition (operation interval is 60s)

If the device trigger condition holds for the specified operation time as shown below, a data dropout occurs on MX Sheet.

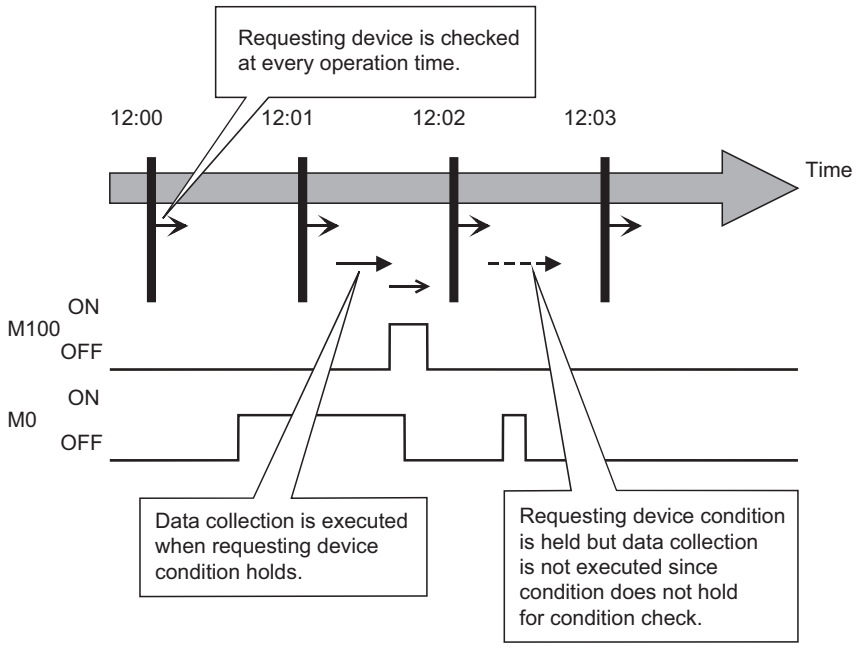


Remark

Note that if a data dropout occurs during use of the device trigger, error information is not displayed on the ErrorLog sheet.

(c) Data dropout when handshake function is used

When the requesting device condition holds for the specified operation time, the data to be collected dropouts.
If a data dropout occurs during use of the handshake, decrease the operation interval setting of MX Sheet.
<Example>
When the programmable controller CPU side requesting device is set to "M0" and the PC side responding device to "M100" (operation interval is 60s)
If the requesting device condition holds for the operation time as shown below, a data dropout occurs on MX Sheet.

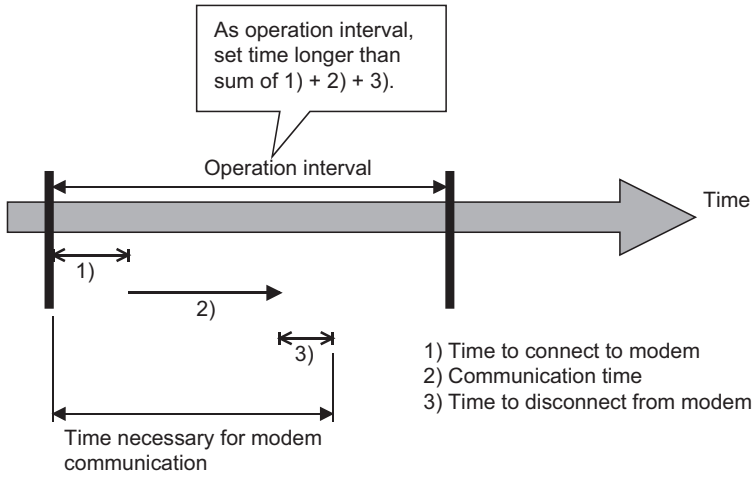


Remark

Note that if a data dropout occurs during use of the handshake, error information is not displayed on the ErrorLog sheet.

(3) Data dropout when modem communication function is used

When modem communication function is used and "Telephone line connectivity time zone" is set for "Connect each time depending on the operation interval", a data dropout occurs due to use of a modem.
To collect the programmable controller CPU device data using modem communication function, set MX Sheet while considering the modem connection time.
If a data dropout occurs during modem communication, increase the operation interval setting of MX Sheet.


As operation interval, set time longer than sum of 1) + 2) + 3).
Operation interval
Time
1)
2)
3)
1) Time to connect to modem
2) Communication time
3) Time to disconnect from modem
Time necessary for modem communication

Appendix 3.2 Date and time

When the logging function and CSV logging are used, the date and time in the cell area and the CSV file may not be displayed correctly.
The following explains an example of the incorrect display, the causes and corrective actions.
<Example (when "Regular interval" is set to 1s)>
Although communication is made at the specified interval, the date and time are not displayed correctly as shown below, since the time when data is actually read exceeds the regular interval.
(Unlike with collection delay, the error information is not displayed in the ErrorLog sheet.)

2012/06/28 Thu 20:41:06	1	2
2012/06/28 Thu 20:41:07	11	12
2012/06/28 Thu 20:41:07	21	12
2012/06/28 Thu 20:41:09	31	32

Time of 20:41:08 is incorrectly displayed as 20:41:07.

<Causes>
- Multiple cell areas is set to the Excel book.
- Multiple cell areas use the same communication path.
- "Operation time" of the <<Operation Interval>> tab is set to "Regular interval".

<Corrective actions>
- Decrease the number of cells set to the Excel book.
- Increase the "Regular interval" setting.
- Reexamine the cell area settings. (☞ Page 160, Appendix 4.)

Appendix 4 Creating the Excel spreadsheet for MX Sheet

When collecting/writing device data by using MX Sheet, the efficiency of communication with the programmable controller CPU varies depending on the cell area settings.
The following provides the example of setting cell area for more effective communication.

(1) Communication efficiency and cell area specifying method

When multiple cell areas is set, MX Sheet executes communication with the programmable controller CPU in order of the cell areas.
When the same communication path is set to multiple cell areas, communication efficiency decreases since all cell areas use one communication path to communicate with the programmable controller CPU.
The following setting example shows the case where the same communication path is set to multiple cell areas.

<Setting example>

	A	B	C	D	E
1					
2		Model name	D0 to D3		
3		Lot No.	D5 to D8		
4					
5		Maximum value	D10	Maximum value	D13
6		Minimum value	D11	Minimum value	D14
7		Crrent value	D12	Crrent value	D15

(a) Inefficient setting

When the above setting example is divided into four cell areas as shown in the following table, MX Sheet executes communication four times. This causes communication load to increase, decreasing communication efficiency.

Cell area name	Cell area	Access data settings			Operation Interval
		Logical station number	Device setting	Number of cells	
Product type	C2	0: Ethernet	D0 Character string	1	1s interval
Lot No.	C3		D5 Character string		
A	C5: C7		D10 16-bit integer	3	
B	E5: E7		D20 16-bit integer		

(b) Efficient setting

When the above setting example is integrated into one cell area as shown in the following table, the collection/write of device data is completed by performing communication once. This enables communication load to decrease, improving communication efficiency.

Cell area name	Cell area	Access data settings			Operation Interval
		Logical station number	Device setting	Number of cells	
Product information	C2, C3, C5:C7, E5:E7	0: Ethernet	D0 Character string	1	1s interval
			D5 Character string		
			D10 16-bit integer	3	
			D20 16-bit integer		

(2) Communication efficiency and access data setting

When one type of device is set as multiple devices, the efficiency of communication with the programmable controller CPU decreases.

The following setting example shows the case where one type of device is specified consecutively.

<Setting example>

	A	B	C	D
1				
2		Maximum value	D0	
3		Minimum value	D1	
4		Crrent value	D2	
5				

(a) Inefficient setting

If the above setting example is divided into three access data as shown below, MX Sheet recognizes them as three types of devices and executes communication, decreasing communication efficiency.

1	D0	16bit integer	DEC		1	1	1	Word
2	D1	16bit integer	DEC		1	1	1	Word
3	D2	16bit integer	DEC		1	1	1	Word

(b) Efficient setting

If the above setting example is integrated into one access data as shown below, MX Sheet recognizes it as one type of device and executes communication, improving communication efficiency

1	D0	16bit integer	DEC		1	3	3	Word
2								
3								

Remark

Any of the following settings prevents the improvement of communication efficiency even if efficient setting is set.

- When "Data Type" is set to "Bit", the device number setting of "Device" is not a multiple of 16.
- CN200 (current value of 32-bit counter device) or later of the FXCPU is set.

(3) Communication efficiency and use of Excel function (cell reference)

When inconsecutive device data are displayed on Excel, the efficiency of communication with the programmable controller CPU decreases if multiple cell areas are set.

The following setting example shows the case where inconsecutive device data are displayed on Excel.

<Setting example>

	A	B	C	D	E	F
1						
2			Maximum value	Minimum value	Crrent value	
3		Line A	D0	D1	D2	
4		Line B	D5	D6	D7	
5		Line C	D10	D11	D12	
6		Line D	D15	D16	D17	
7						

(a) Inefficient setting

When the above setting example is divided into four cell areas as shown in the following table, MX Sheet executes communication four times. This causes communication load to increase, decreasing communication efficiency.

Cell area name	Cell area	Access data settings			Operation Interval
		Logical station number	Device setting	Number of cells	
Line A	C3: E3	0: Ethernet	D0 Character string	3	1s interval
Line B	C4: E4		D5 Character string		
Line C	C5: E5		D10 16-bit integer		
Line D	C6: E6		D15 16-bit integer		

(b) Efficient setting

When the above setting example is integrated into one cell area as shown in the following table and device data are collected in the other Excel spreadsheet (Sheet 2), this decreases communication load, improving communication efficiency.

Set cell reference so that Excel spreadsheet 1, which actually displays the device data, is refer to the corresponding cells within Excel spreadsheet 2, which collects the device data.

(MX Sheet need not be set in the Excel spreadsheet where device data is displayed actually (Sheet 1).)

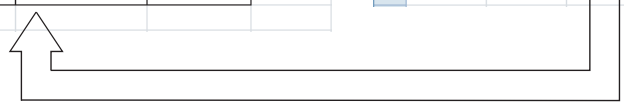
Cell area name	Cell area	Access data settings			Operation Interval
		Logical station number	Device setting	Number of cells	
Line information	A2: E5 (Area set to Sheet 2)	0:Ethernet	D0 16-bit integer	20	1s interval

Sheet 1 (Excel spreadsheet where device data is displayed actually)

	A	B	C	D	E	F
1						
2			Maximum value	Minimum value	Crrent value	
3		Line A	=Sheet2!A2	=Sheet2!B2	=Sheet2!C2	
4		Line B	=Sheet2!A3	=Sheet2!B3	=Sheet2!C3	
5		Line C	=Sheet2!A4	=Sheet2!B4	=Sheet2!C4	
6		Line D	=Sheet2!A5	=Sheet2!B5	=Sheet2!C5	
7						

Sheet 2 (Excel spreadsheet where device data is collected)

	A	B	C	D	E	F
1	Line monitor					
2	D0	D1	D2	D3	D4	
3	D5	D6	D7	D8	D9	
4	D10	D11	D12	D13	D14	
5	D15	D16	D17	D18	D19	
6						



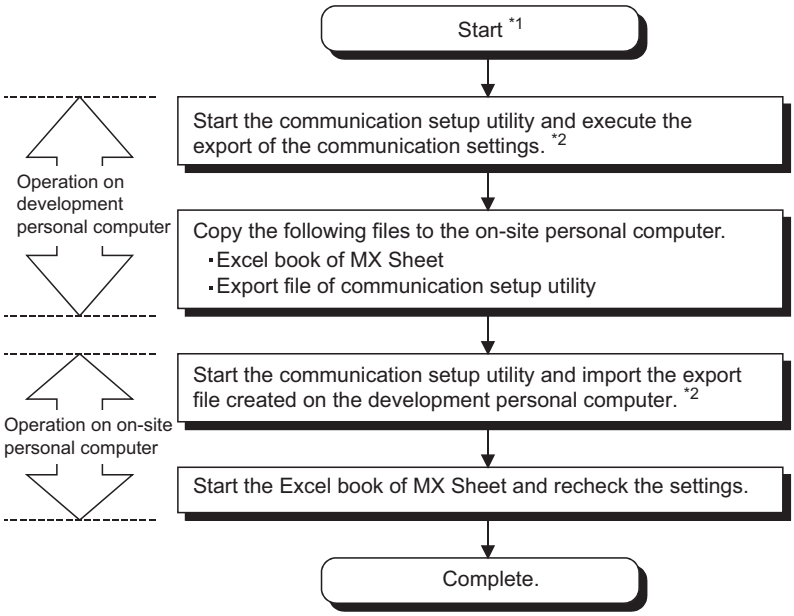
Set Sheet 1 to refer to cells of Sheet 2.

Appendix 5 Procedure to Transport Data to Other Personal Computer

This section explains the procedure to transport the settings of MX Sheet from a development personal computer to an on-site personal computer.

Point

MX Sheet and MX Component must be installed in the personal computer where the settings of MX Sheet is transported.


Start *1
Start the communication setup utility and execute the export of the communication settings. *2
Operation on development personal computer
Copy the following files to the on-site personal computer.
・Excel book of MX Sheet
・Export file of communication setup utility
Start the communication setup utility and import the export file created on the development personal computer. *2
Operation on on-site personal computer
Start the Excel book of MX Sheet and recheck the settings.
Complete.

*1: The Excel book for MX Sheet should be created on the development personal computer.
*2: For the import and export operations of communication settings, refer to MX Component Version 4 Operating Manual.

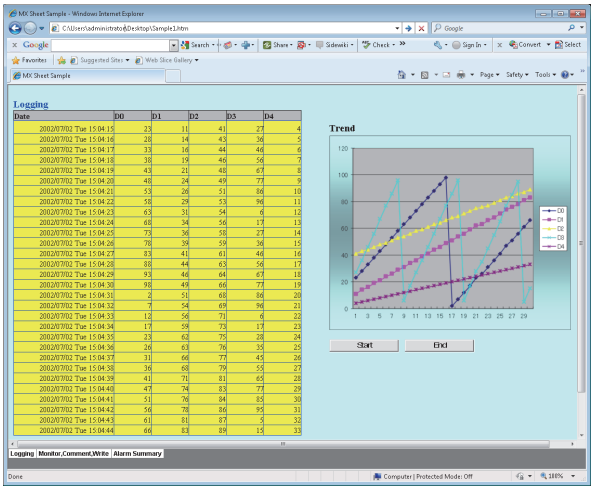
Appendix 6 HTML Files

This section explains the HTML file saved during MX Sheet operation.

(1) HTML file

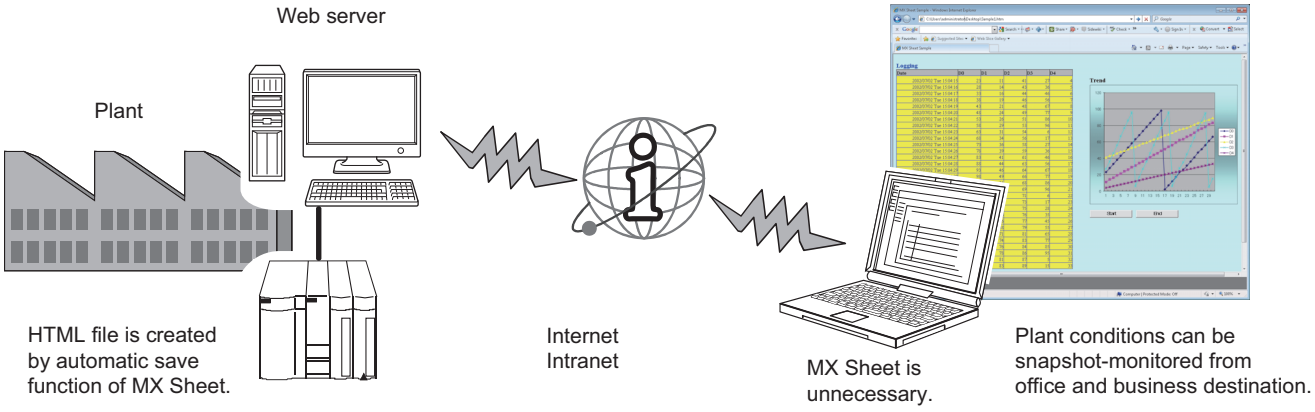
MX Sheet allows an HTML file to be saved automatically into the folder specified when any of the following functions is used.

- Logging function (when cell is full)
- Alarm summary function (when cell is full)
- Automatic save setting



(2) Convenient use of HTML file

The data collected by MX Sheet can be snapshot-monitored from a business destination, office or other place via the Internet/intranet, with the plant side personal computer (personal computer where MX Sheet is operating) used as a Web server.


Web server
Plant
HTML file is created by automatic save function of MX Sheet.
Internet
Intranet
MX Sheet is unnecessary.
Plant conditions can be snapshot-monitored from office and business destination.

(3) Continuous operation when saving data automatically in HTML format

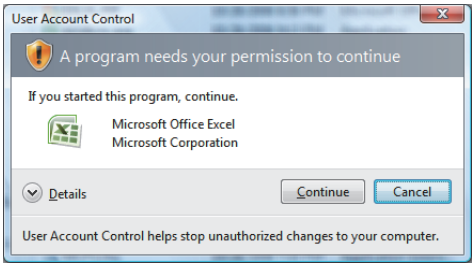
Do not operate MX Sheet continuously when the Automatic save function is set to save data in HTML format.
For operating MX Sheet continuously, exit and reactivate Excel periodically.
If data are saved repeatedly in HTML format with the Automatic save function,
Excel may not operate properly.
The time for allowable continuous operation differs according to the operating environment.

Appendix 7 Warning Messages on Windows®

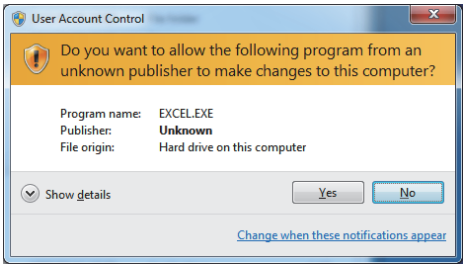
Appendix 7.1 Overview of warning messages

The user account control function is added to Windows Vista® or later.
By this function, a warning message is displayed when executing Excel with Administrator authority. (☞ Page 28, CHAPTER 4)

<Windows Vista®>



<Windows® 7 or later>


User Account Control
Do you want to allow the following program from an unknown publisher to make changes to this computer?
Program name: EXCEL.EXE
Publisher: Unknown
File origin: Hard drive on this computer
Show details
Yes
No
Change when these notifications appear

Appendix 7.2 Methods for disabling the warning messages

Point

- The user account control (UAC) function prevents a crash (e.g. prevention of startup of a program which executes unintended operation).
  Before setting this function, grasp that the security function offered by UAC is disabled and fully understand the risk.

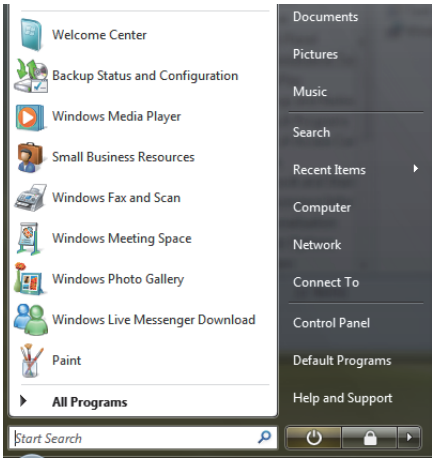
The following two methods are available for disabling a warning message.

(1) Disabling the user account control function

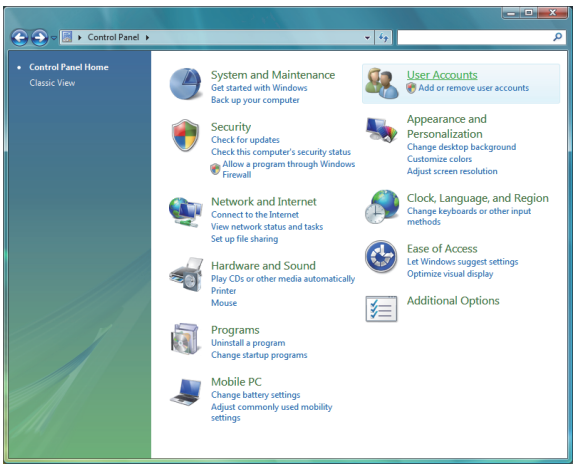
The following shows a procedure for disabling the user account control function.

(a) When using Windows Vista®

Operating procedure



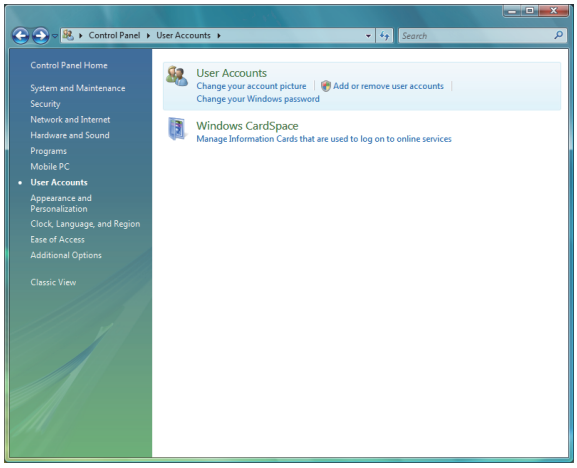
1. **Select [Start] ⇨ [Control Panel].**



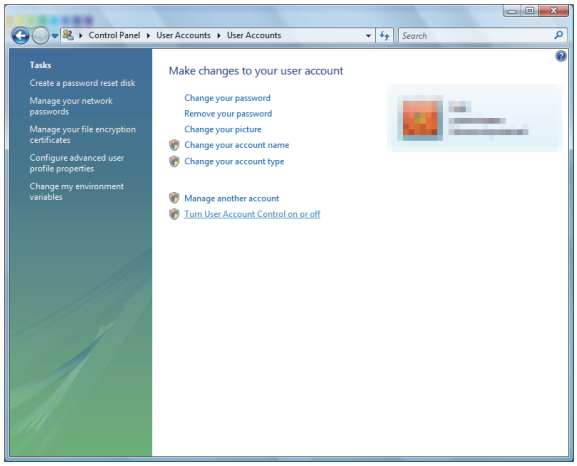
2. **Select [User Accounts].**

To the next page

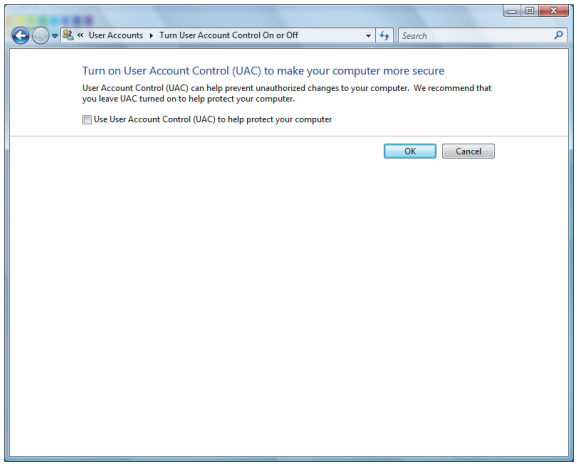
From the previous page



3. **Select [User Accounts].**


Control Panel ▸ User Accounts ▸ User Accounts
Search
Tasks
Create a password reset disk
Manage your network passwords
Manage your file encryption certificates
Configure advanced user profile properties
Change my environment variables
Make changes to your user account
Change your password
Remove your password
Change your picture
Change your account name
Change your account type
Manage another account
Turn User Account Control on or off

4. **Select [Turn User Account Control on or off].**

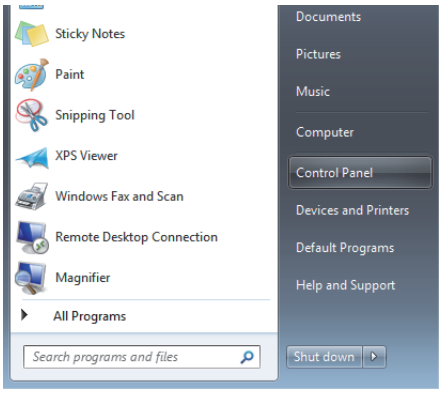

« User Accounts ▸ Turn User Account Control On or Off
Search
Turn on User Account Control (UAC) to make your computer more secure
User Account Control (UAC) can help prevent unauthorized changes to your computer. We recommend that you leave UAC turned on to help protect your computer.
Use User Account Control (UAC) to help protect your computer
OK
Cancel

5. **Clear [Use User Account Control (UAC) to help protect your computer] and click the** OK **button.**

Complete

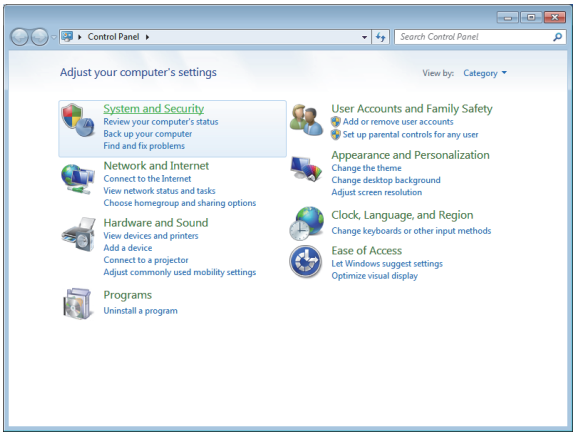
(b) When using Windows® 7 or later

Operating procedure

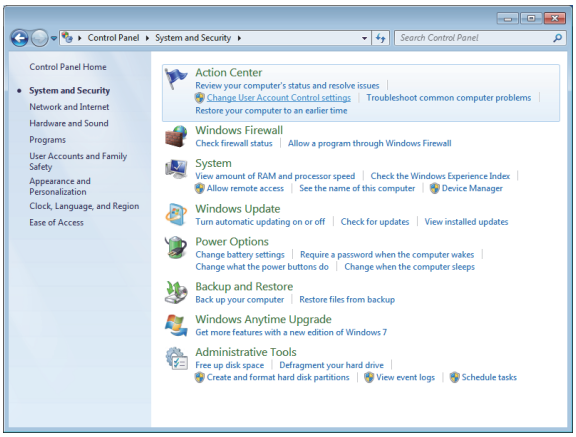


1. **Select [Start] ⇨ [Control Panel].**

For Windows® 8 and Windows® 8.1, right-click the lower left corner of the screen, and select [Control Panel].



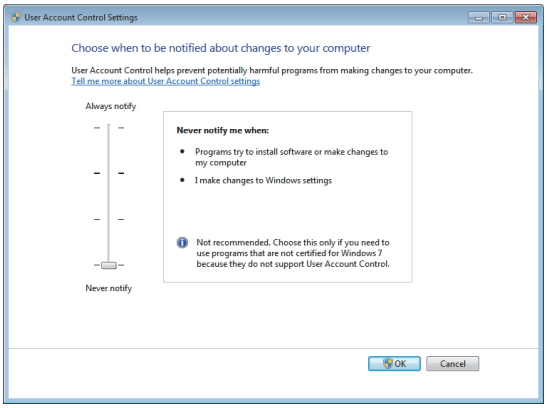
2. **Select [System and Security].**



3. **Select [Change User Account Control settings].**

To the next page

From the previous page

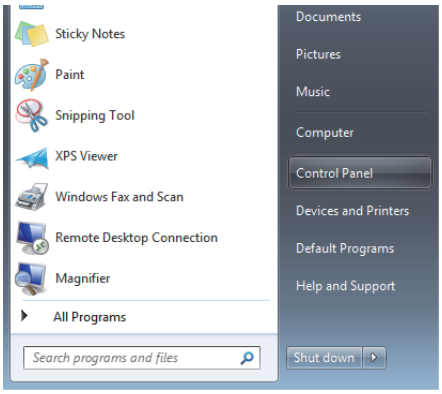

User Account Control Settings
Choose when to be notified about changes to your computer
User Account Control helps prevent potentially harmful programs from making changes to your computer.
Tell me more about User Account Control settings
Always notify
Never notify me when:
Programs try to install software or make changes to my computer
I make changes to Windows settings
Not recommended. Choose this only if you need to use programs that are not certified for Windows 7 because they do not support User Account Control.
Never notify
OK
Cancel

Complete

4. **Set the slide bar "Never notify" and click the OK button.**

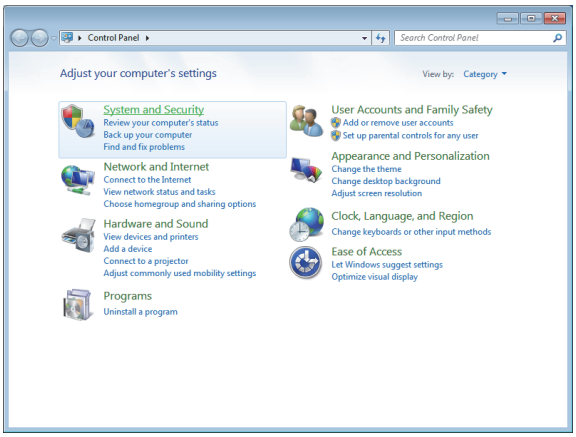
(2) Allowing the warning message without showing it

The following shows a procedure for allowing a warning message without showing it.



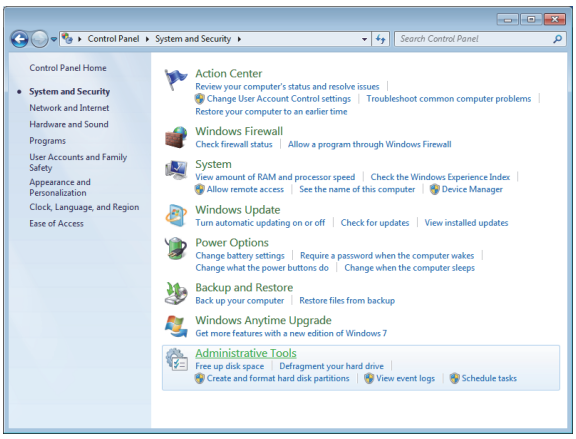
1. Select [Start] ⇨ [Control Panel].

For Windows® 8 and Windows® 8.1, right-click the lower left corner of the screen, and select [Control Panel].



2. Select [System and Security].

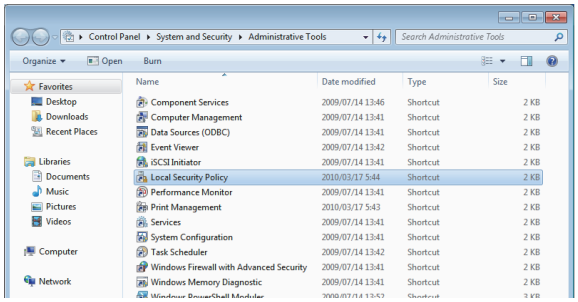
When using Windows Vista®, select [Classic View].



3. Select [Administrative Tools].

To the next page

From the previous page

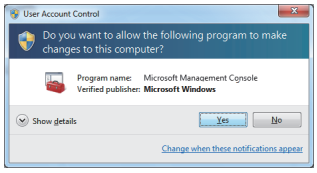


4. **Select [Local Security Policy].**

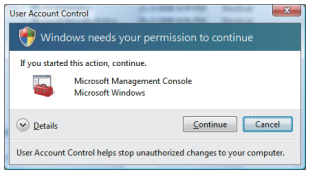
When user account control is enabled, the following screen is displayed.

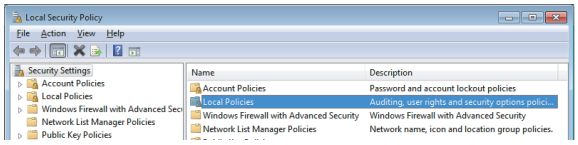
Click the Continue button or the Yes button.

<Windows Vista®>

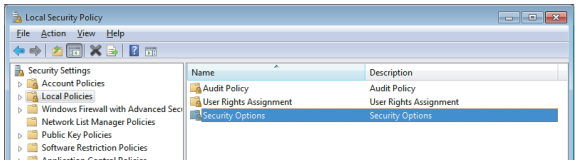


<Windows® 7 or later>

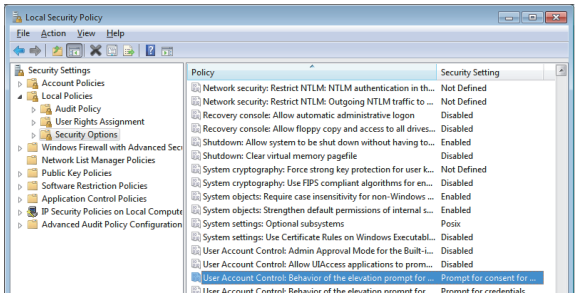




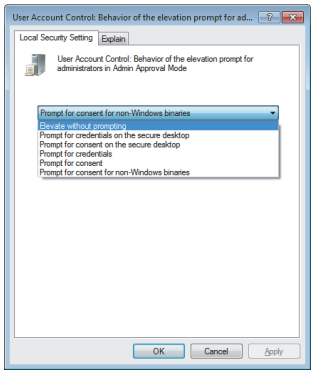
5. **Select [Local Policies].**



6. **Select [Security Options].**



7. **Select [User Account Control: Behavior of the elevation prompt for administrators in Admin Approval Mode Prompt for consent].**



8. **Select [Elevate without prompting] on the <<Local Security Setting>> tab, and click the** OK **button.**

Complete

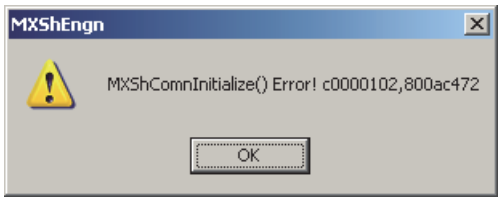
Appendix 8 Countermeasures for Errors as a Result of Using the Automatic Communication Setting of MX Sheet in Microsoft® Excel® 2007 or Later

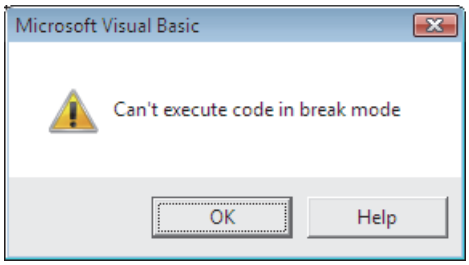
When a workbook that has been configured for "Automatic Communication Startup" using MX Sheet is opened using Microsoft® Excel® 2007 or later, the following anomalous situations may occur. (☞ Page 120, CHAPTER 9)

Appendix 8.1 Situations

(1) Excel stops responding.

(2) One of the following error messages is displayed.





Appendix 8.2 Cause of anomalous situations

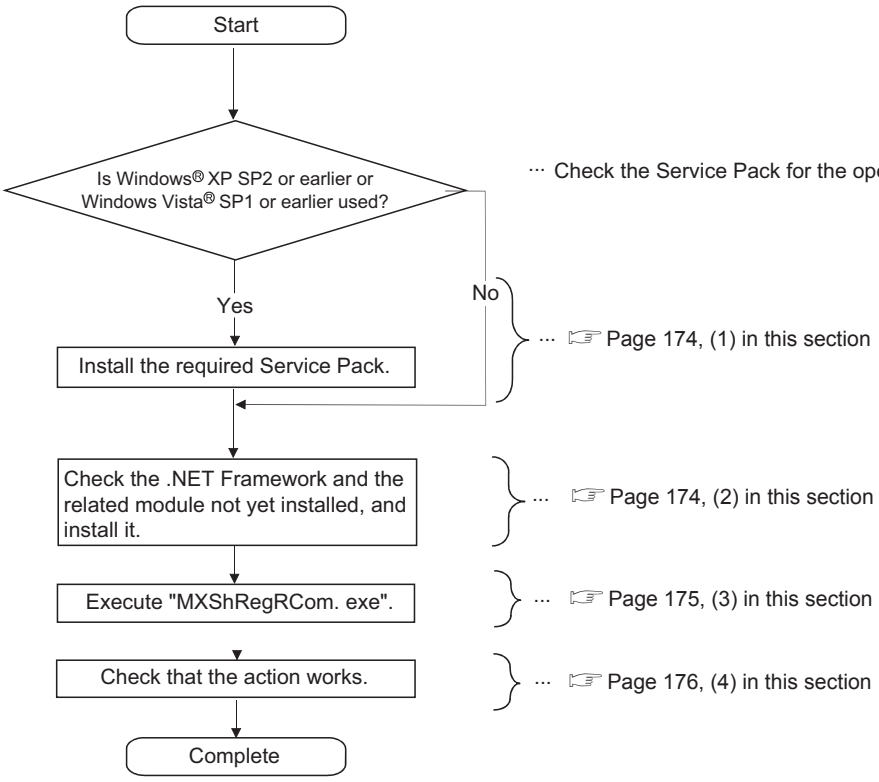
These situations may occur if the following conditions are met.

(1) An Excel book is opened after setting MX Sheet automatic communication startup.

(2) An Excel book is opened with Microsoft® Excel® 2007 or later.

Appendix 8.3 Corrective action

Use the following flowchart to determine the course of action.


Start
Is Windows® XP SP2 or earlier or Windows Vista® SP1 or earlier used?
··· Check the Service Pack for the operating environment.
Yes
No
Install the required Service Pack.
··· ☞ Page 174, (1) in this section
Check the .NET Framework and the related module not yet installed, and install it.
··· ☞ Page 174, (2) in this section
Execute "MXShRegRCom. exe".
··· ☞ Page 175, (3) in this section
Check that the action works.
··· ☞ Page 176, (4) in this section
Complete

Point

Update MX Sheet or install Service Pack, .NET Framework, and the related module using the administrator account.

(1) Installation of Service Pack

Install the Service Pack required for the used operating system.
For details of required service pack, refer to the following section.
☞ Page 24, Section 2.1 Operating Environment

(2) Checking and installation of .NET Framework and the related module

The following tables list .NET Frameworks and the related modules required for each operating environment.
If they are not installed, install them in the order listed in the table.
The file is in the "DOTNET" folder.

(a) When using Windows XP®

Excel version	.NET Framework and the related module	File name on the CD-ROM
Microsoft® Excel® 2007	Microsoft® .NET Framework 3.5 SP1	dotnetfx35.exe
	Microsoft® .NET Framework 4.0 Extended	dotNetFx40_Full_x86_x64.exe
	Microsoft® Visual Studio 2010 Tools for Office Runtime (x86)	vstor_redist.exe
Microsoft® Excel® 2010	Microsoft® .NET Framework 4.0 Extended	dotNetFx40_Full_x86_x64.exe
	Microsoft® Visual Studio 2010 Tools for Office Runtime (x86)	vstor_redist.exe

(b) When using Windows Vista®

Excel version	.NET Framework and the related module	File name on the CD-ROM
Microsoft® Excel® 2007 Microsoft® Excel® 2010	Microsoft® .NET Framework 4.0 Extended	dotNetFx40_Full_x86_x64.exe
	Microsoft® Visual Studio 2010 Tools for Office Runtime (x86)	vstor_redist.exe

(c) When using Windows® 7

① 32-bit version

Excel version	.NET Framework and the related module	File name on the CD-ROM
Microsoft® Excel® 2007	Microsoft® .NET Framework 4.0 Extended	dotNetFx40_Full_x86_x64.exe
Microsoft® Excel® 2010 Microsoft® Excel® 2013	Microsoft® Visual Studio 2010 Tools for Office Runtime (x86)	vstor_redist.exe

② 64-bit version

Excel version	.NET Framework and the related module	File name on the CD-ROM
Microsoft® Excel® 2007	Microsoft® .NET Framework 4.0 Extended	dotNetFx40_Full_x86_x64.exe
Microsoft® Excel® 2010 Microsoft® Excel® 2013	Microsoft® Visual Studio 2010 Tools for Office Runtime (x64)	vstor_redist.exe

(d) When using Windows® 8 and Windows® 8.1 *1

① 32-bit version

Excel version	.NET Framework and the related module	File name on the CD-ROM
Microsoft® Excel® 2007 Microsoft® Excel® 2010 Microsoft® Excel® 2013	Microsoft® Visual Studio 2010 Tools for Office Runtime (x86)	vstor_redist.exe

② 64-bit version

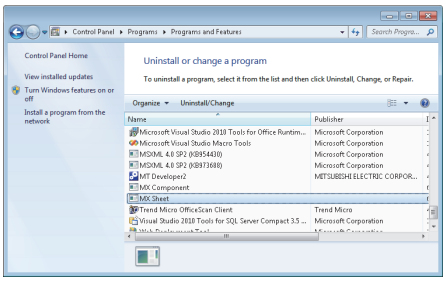
Excel version	.NET Framework and the related module	File name on the CD-ROM
Microsoft® Excel® 2007 Microsoft® Excel® 2010 Microsoft® Excel® 2013	Microsoft® Visual Studio 2010 Tools for Office Runtime (x64)	vstor_redist.exe

*1 : ".NET Framework 4.5 Advanced Services" needs to be enabled in "Turn Windows features on or off" on Control Panel.

Point

Check if the required .NET Framework and the related module are installed or not by the following operations.

- When using Windows XP®
  Select [Start] ⇨ [Control Panel] ⇨ [Add or Remove Programs].
- When using Windows Vista® or later
  Select [Start] ⇨ [Control Panel] ⇨ [Uninstall a program].



Check if the "Add or Remove Programs" screen or the "Uninstall or a change a program" screen displays the required .NET Framework and the related module.

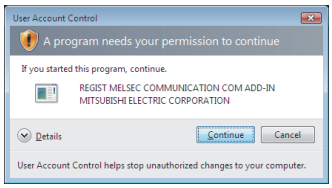
(3) Execution of "MXShRegRCom.exe"

After installing .NET Framework and the related module, execute "MXShRegRCom.exe" in the folder where MX Sheet is installed ("C:\MELSEC\Sheet\" when the installation location folder was not changed at installation).

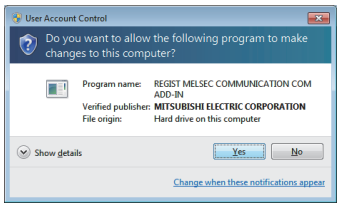
When the user account control is enabled, the following screen is displayed.

Click the Continue button or the Yes button.

<Windows Vista®>

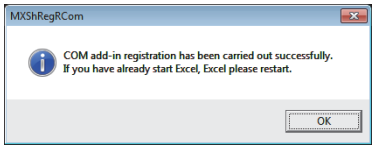

User Account Control
A program needs your permission to continue
If you started this program, continue.
REGIST MELSEC COMMUNICATION COM ADD-IN
MITSUBISHI ELECTRIC CORPORATION
Details
Continue
Cancel
User Account Control helps stop unauthorized changes to your computer.

<Windows® 7 or later>


User Account Control
Do you want to allow the following program to make changes to this computer?
Program name: REGIST MELSEC COMMUNICATION COM ADD-IN
Verified publisher: MITSUBISHI ELECTRIC CORPORATION
File origin: Hard drive on this computer
Show details
Yes
No
Change when these notifications appear

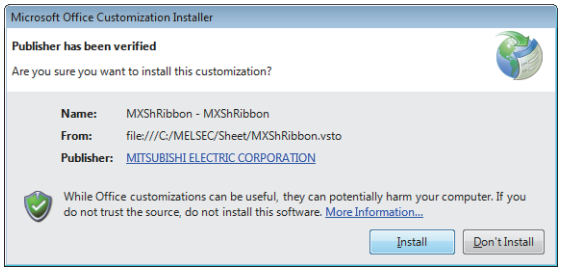
The message shown in the figure to the left is displayed to notify the completion.

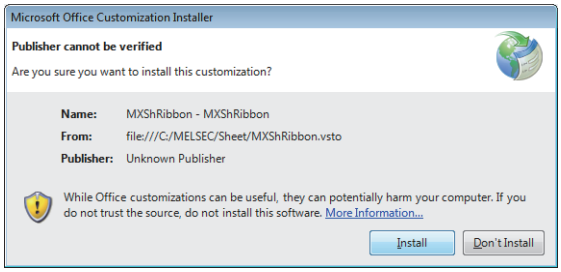
Click the OK button.


MXShRegRCom
COM add-in registration has been carried out successfully.
If you have already start Excel, Excel please restart.
OK

(4) Checking if the action works

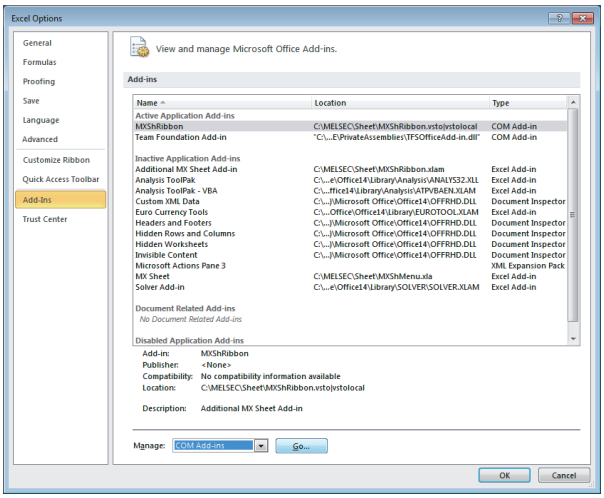
The following explains how to check if the action works or not.


Microsoft Office Customization Installer
Publisher has been verified
Are you sure you want to install this customization?
Name: MXShRibbon - MXShRibbon
From: file:///C:/MELSEC/Sheet/MXShRibbon.vsto
Publisher: MITSUBISHI ELECTRIC CORPORATION
While Office customizations can be useful, they can potentially harm your computer. If you do not trust the source, do not install this software. More Information...
Install
Don't Install


Microsoft Office Customization Installer
Publisher cannot be verified
Are you sure you want to install this customization?
Name: MXShRibbon - MXShRibbon
From: file:///C:/MELSEC/Sheet/MXShRibbon.vsto
Publisher: Unknown Publisher
While Office customizations can be useful, they can potentially harm your computer. If you do not trust the source, do not install this software. More Information...
Install
Don't Install

1. **Start Excel.**

2. **When either of the screens on the left is displayed, click the Install button.**



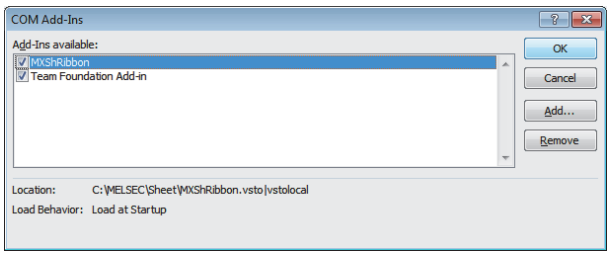
3. **Select the <<File>> tab ⇨ [Options].**

The Excel Options screen is displayed.

Select "Add- Ins", change the item in "Manage" to "COM Add-ins", and click the Go... button.

< When using Microsoft® Excel® 2007 >

Select the office button⇒ Excel Options button.



4. **"MXShRibbon" is displayed on the COM Add-Ins screen.**

Check that "MXShRibbon" check box is selected.

Complete

Appendix 9 Differences with Previous Version of MX Sheet

(1) Comparison with MX Sheet Version 1

This section explains the differences between MX Sheet Version 2 and MX Sheet Version 1.

(a) Operating environment (Applicable software)

	MX Sheet Version 1	MX Sheet Version 2
OS*1	Microsoft® Windows® 98 Microsoft® Windows® Millennium Edition Microsoft® Windows® NT® Workstation Microsoft® Windows® 2000 Professional Microsoft® Windows XP® Professional Microsoft® Windows XP® Home Edition Microsoft® Windows Vista® Home Basic Microsoft® Windows Vista® Home Premium Microsoft® Windows Vista® Business Microsoft® Windows Vista® Ultimate Microsoft® Windows Vista® Enterprise Microsoft® Windows® 7 Starter Microsoft® Windows® 7 Home Premium Microsoft® Windows® 7 Professional Microsoft® Windows® 7 Ultimate Microsoft® Windows® 7 Enterprise	Microsoft® Windows XP® Professional Microsoft® Windows XP® Home Edition Microsoft® Windows Vista® Home Basic Microsoft® Windows Vista® Home Premium Microsoft® Windows Vista® Business Microsoft® Windows Vista® Ultimate Microsoft® Windows Vista® Enterprise Microsoft® Windows® 7 Starter Microsoft® Windows® 7 Home Premium Microsoft® Windows® 7 Professional Microsoft® Windows® 7 Ultimate Microsoft® Windows® 7 Enterprise Microsoft® Windows® 8 Microsoft® Windows® 8 Pro Microsoft® Windows® 8 Enterprise Microsoft® Windows® 8.1 Microsoft® Windows® 8.1 Pro Microsoft® Windows® 8.1 Enterprise
Excel*1	Microsoft® Excel® 2000 (English version) Microsoft® Excel® 2002 (English version) Microsoft® Excel® 2003 (English version) Microsoft® Excel® 2007 (English version) Microsoft® Excel® 2010 (English version)	Microsoft® Excel® 2003 (English version) Microsoft® Excel® 2007 (English version) Microsoft® Excel® 2010 (English version) Microsoft® Excel® 2013 (English version)

*1 : Limitations on the supported Service Pack

Remark

- Using the unsupported operating environment
  Use MX Sheet Version 1 when using the operating environment which is not supported by MX Sheet Version 2.
  MX Sheet Version 1 is included on the CD-ROM of MX Sheet Version 2.
- Details of operating environment
  Refer to the following section and manual.
  ☞ Page 24, Section 2.1 Operating Environment
  📖MX Component Version 4 Operating Manual
  The manual is included on the CD-ROM of MX Sheet Version 2 in a PDF file format.

(2) Compatibility

(a) Installation

MX Sheet Version 2 cannot be installed with MX Sheet Version 1.

Install MX Sheet Version 2 after uninstalling MX Sheet Version 1

(b) Utilizing Excel books

Excel books created in MX Sheet Version 1 can be used in MX Sheet Version 2 without modifications.

Appendix 10 Version Compatibility

(1) Communication route in which an error occurs depending on the version of MX Sheet

If the communication route, which is supported by MX Sheet of which version is later than the using MX Sheet, is used in Excel file, an error occurs when reading data.

(2) Communication route in which an error occurs depending on the combination with MX Component

The following table shows the communication route in which an error occurs depending on the combinations of MX Component Version 4 and MX Sheet Version 2.

MX Component Version	4.04E or earlier	4.05F	4.06G	4.07H 4.08J	4.09K or later
MX Sheet Version 2.01Bor earlier	○	○	○	○	○
MX Sheet Version 2.02C	×*1	○	○	○	○
MX Sheet Version 2.03D or 2.04E	×*1, *2	×*2	○	○	○
MX Sheet Version 2.05F	×*1, *2, *3	×*2, *3	×*3	○	○
MX Sheet Version 2.06G or later	×*1, *2, *3, *4	×*2, *3, *4	×*3, *4	×*4	○

*1 : A communication error occurs when the route which is communicated with an inverter is included.
*2 : A communication error occurs when the route which is communicated with RCPU or R motion CPU is included.
*3 : A communication error occurs when the route which is communicated with a robot controller is included.
*4 : A communication error occurs when the route which is communicated with FX5CPU is included.

REVISIONS

*The manual number is written at the bottom left of the back cover.

Print date	*Manual number	Revision
Jul., 2012	SH-081080ENG-A	First edition
Mar., 2013	SH-081080ENG-B	Addition Appendix 9 Correction Section 3.1
Aug., 2013	SH-081080ENG-C	Correction Considerations for using operating system and personal computer, TERMS, Section 1.2, Section 2.1, Appendix 2, Appendix 7.1, Appendix 7.2, Appendix 8.3, Appendix 9
Dec., 2013	SH-081080ENG-D	Correction TERMS, Section 2.1, Section 6.1, Section 6.2.2, Section 6.2.4, Section 6.2.5, Chapter 11, Section 12.3, Appendix 2, Appendix 8.3, Appendix 9
May, 2014	SH-081080ENG-E	Correction TERMS, Section 2.1, Section 6.2, Section 6.2.2, Section 6.2.4, Section 6.2.5, Section 6.3, Section 6.3.2, Section 6.4, Section 6.4.2, Section 6.5, Section 6.5.2, Section 6.6, Section 6.6.2, Appendix 7.2, Appendix 8.3, Appendix 9
Dec., 2014	SH-081080ENG-F	Addition Appendix 10 Correction Considerations for using operating system and personal computer, TERMS, Section 6.1, Section 6.2.2, Section 6.2.4, Section 6.2.5
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Aug., 2015	SH-081080ENG-H	Correction TERMS, Section 6.2.3, Section 6.2.6, Section 6.3.3, Section 6.4.3, Section 6.5.4, Section 6.6.4, Appendix 2

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SH(NA)-081080ENG-H(1508)KWIX
MODEL: SW2DNC-SHEET-O-E
MODEL CODE: 13JU73

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